

# MODEL AIRPLANE NEWS

August 1959—35 cents

IN THIS ISSUE

**Delta Jet Glider**  
**Low Wing RC**

•  
ALSO . . . Aeronca Tri-Traveler  
Flying Model, Lauderdale's Dizzy Bee



NG TIGERS—BIG AND LITTLE



RADIO CONTROL TRAINER MAMBO,  
designed and engineered for radio  
control.

by **Sterling**



CONTROL LINE  
Ideal for Beginners.  
PROFILE TRAINER II

by **Guillow's**



SPORT FREE  
FLIGHT FAIRCHILD PT-19 may also  
be flown as Control Line Model, as  
well as Radio Control.

by **Sterling**



COMBAT FLYERS, the FLITE STREAK, JR.  
is supermaneuverable.

by **TOP FLITE**

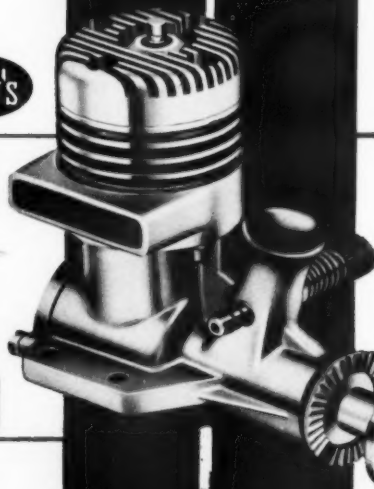


The 1/2A SUPER STUNTMASTER is a  
real tiger with Fox 15 power.

by **SCIENTIFIC**

# 15

the  
**RIGHT** for  
motor YOU



the  
RIGHT SIZE  
the  
RIGHT POWER  
the  
RIGHT BRAND  
the  
RIGHT PRICE

**\$6 95**



FREE FLIGHT . . . Get up there fast  
with a RAMROD 600.

by **Berkeley**



Brand new RC Trainer  
the EXPLORER—Rudder only,  
intermediate or  
multi-channel.

by **Guillow's**



SCALE FANS . . . Try this new super  
Combat-stunt HAWKER TYPHOON.

by **ENTERPRISE**



COMBAT Control liner.  
For the Combat Keen flyer, the  
LANCER is the answer.

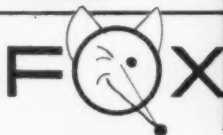
by **Berkeley**

R C FANS  
ROTO VALVE  
Provides  
Speed Control



Kits shown are recommended by their manufac-  
turers for use with the Fox 15. Both kits and  
Fox Motors are available from your Favorite  
Hobby Shop.

SMART CHAMPIONS CHOOSE



**FOX MANUFACTURING CO., Inc.**

Designers and Manufacturers of the World's Finest Model Airplane Motors

5305 TOWSON AVENUE, FORT SMITH, ARKANSAS





H

R



C





**PLM-47 Snark SM-62**  
Intercontinental Guided  
Missile. True-to-Scale,  
complete with Launcher,  
.049B "OK" Cub Engine  
with Auto-Recoil Starter.  
Length 18 1/2".  
**\$14.95**



**PLM-31 Regulus SSM**  
Guided Missile.  
.049A "OK" Cub  
Engine and Starter.  
Length 14 1/4".  
**\$7.95**

**PLM-45 Mustang F-51**  
.049B "OK"  
Cub Engine with  
Auto-Recoil Starter.  
Length 13 1/4".  
True-to-Scale.  
**\$12.95**



**PLM-30 Piper-Tri-Pacer.**  
.049A "OK"  
Cub Engine and  
Starter. Length 11 1/4".  
True-to-Scale.  
**\$7.95**



**PLM-46 Starfighter.**  
.049B "OK"  
Cub Engine with  
Auto-Recoil Starter.  
Length 19 1/4".  
**\$14.95**



**PLM-44 Sabre 44.**  
.049B "OK" Cub  
Engine and Starter.  
Length 14 1/4".  
**\$9.95**



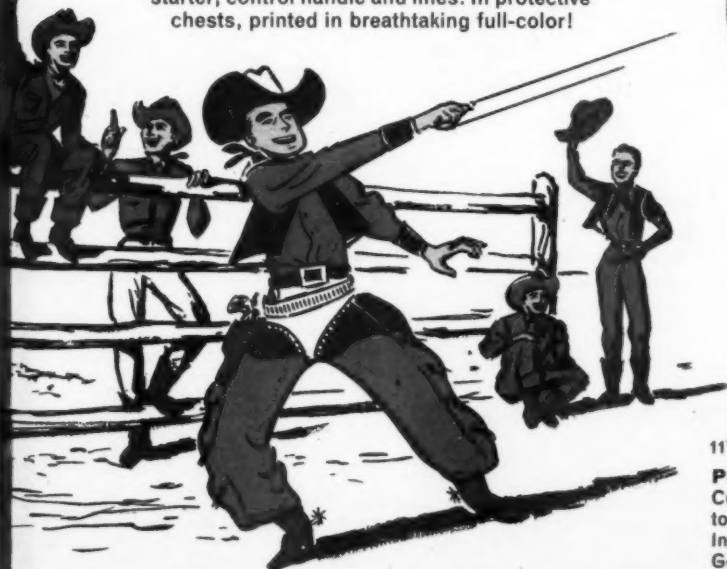
# HAVE ENGINES, WILL FLY



Control handle  
and lines with  
every model

## Ready-to-Fly U-Control GAS MODELS

... and how they'll fly! Comet's Ready-to-Fly "fleet" of high-impact plastic beauties out-flies, out-values and out-sells 'em all! We design 'em for maximum flyability, then choose the best engine for the job. Each complete with engine, starter, control handle and lines. In protective chests, printed in breathtaking full-color!



# by COMET

Ready-to-run



11" long

Friction Clutch Drive

**PLR-3200 Belond AP Special Racing Car.** .074 "OK" Cub Engine with pull starter, Bridle and Tetherlines. True-to-Scale replica of the car that won the 1957 and 1958 Indianapolis Speedway classics. In dazzling yellow plastic. Genuine rubber tires, decals and driver. **\$11.95**

**COMET MODEL HOBBYCRAFT, INC.**

501 WEST 35TH STREET, CHICAGO 16, ILLINOIS

Send for these 2 BIG COMET BOOKS:

The New Comet Catalog—10¢; shows hundreds of models in color. 20-Page Book—"What Makes An Airplane Fly"—lots of pictures and diagrams—in 2 colors—75¢

# NEW

## FUEL PUMP and FUELER

### FROM

### PERFECT

You can now fuel your flying models easily and accurately...the "professional" way. Available only from PERFECT, a plunger type fuel pump and an all new bulb fueler with the exclusive features demanded by all model flying hobbyists. Both of these items • filter your fuel automatically • fit into any tank • measure fuel accurately • empty fuel cans completely • are easy to handle • are corrosion proof • and will give you years of trouble-free, dependable service. Get yours today from your favorite hobby dealer.

#### PERFECT FUELER

##### ★ EXCLUSIVE FEATURES

- ★ Transparent Polyethelene Bulb
- ★ Built-In Fuel Filter
- ★ Nozzle Fits Into Tank
- ★ Graduated To Measure Fuel
- ★ Telescoping Tube Empties Can
- ★ Fits Pocket Conveniently

1/2 pint size  
pint size  
quart size



ALL SIZES

Only  
**59c**  
Each

1/2 pint size  
pint size  
quart size



ALL SIZES

Only  
**69c**  
Each

#### PERFECT FUEL PUMP

##### ★ EXCLUSIVE FEATURES

- ★ Flexible Gas Line
- ★ Built-in Fuel Filter
- ★ Nozzle Fits Into Tank
- ★ Measures Fuel per Stroke
- ★ Adjustable Tube Empties Can
- ★ Spout Swivels to Any Position

# PERFECT PARTS CO.

For Perfect  
Performance  
Use Only  
Guaranteed

PERFECT Products



P. G. F. CHINN

## Foreign Notes

### F.A.I.

As is now generally known, no country has volunteered to run the Free-Flight Gas World Championships this year, so there will be no contest. It is clear, despite all the FAI discussions on who should be entitled to run World Championship events and where, that the present situation is just not good enough. It is hoped that some workable system will be devised at the next annual meeting of the FAI Model Commission and that all the delegates will be in a position to say, definitely, whether or not, their countries can be relied upon to take their turns in organizing these events.

The other two free-flight contests for this year, Wakefield and A2 Glider, will be held, respectively, in France and Belgium. The former will be at the American airfield at Brienne-le-Chateau, July 18-20 and the A2 will be at Reustem, August 23.

In addition, the big R/C event for the King of the Belgians Cup, will be at Hirzenhain, Germany, on September 19 and 20. This will be flown to the new FAI radio-control rules. These rules are divided into four categories: single-control glider, single-control power, multi-control aerobatic glider and multi-control aerobatic power. Stunt schedule for the latter event includes wing-over, Immelmann turn, three superimposed loops, three superimposed outside loops, split-S, roll, roll in opposite direction, stall, inverted flight, left and right circle while inverted, horizontal eight, Cuban eight, vertical eight, and up to three turns of a spin.

FAI rule changes include a new requirement in regard to towline pennant size, which is now increased from 1.5 sq. dm. to 2.5 sq. dm. (38.75 sq. in.). The exchange of engines between contestants is now prohibited. Although this situation seldom arises, it will, for example, prevent team use of one especially hot racing motor in several speed models.

### GREAT BRITAIN

Big changes are taking place, in the U.K. model market, which are bound to effect British modeling habits. These changes are a result of the long-awaited relaxing of import restrictions and, with much model merchandise now being imported from the U.S., Japan and, to a lesser extent, from Germany and other countries, British modelers at last have at their disposal almost every type of model item they could wish for.

There are now, for instance, as many different imported engines on the market as home-produced engines. Particularly welcome have been stunt type glow engines from the U.S. and Japan, such as Fox and Veco, O.S. and Enya. Cox's Pee-Wee, as well as the .049 models, are also proving popular and some members of the industry are predicting that British-made baby glow motors, on the the American pattern, will eventually take over from the small diesel as the standard beginner's engine. Hitherto, in Britain and throughout Europe, 99 percent of engine sales have been of diesels, while ready-made engine powered models have been practically unknown. The production of glow-engined plastic models in England, however, is now near, and it is certain that familiarizing the (Continued on page 54)

# You're always "on frequency" with a CG transmitter-receiver combo

(New CG Venus Transmitter meets new FCC specs)

Here's an entirely new, single channel, extremely stable tone transmitter that'll stay right "on frequency" through every flight you make.

Known as the Venus, this new high powered version, modeled after the famous CG T-12 transmitter, is lightweight and a dream to operate. A high precision CG crystal keeps the Venus within 0.01% of specified operating frequency — well within new FCC specs.

And it's economical to run, too! "Balanced Power" design saves battery power — gets up to a year's use from "B" batteries.

Best of all, the Venus is economy priced at only \$29.95. Get your order in early. Contact your local dealer or write direct to CG Electronics.



Venus is designed for any one of following FCC-allocated frequencies: 26.995 mc, 27.045 mc, 27.095 mc, 27.145 mc, 27.195 mc, and 27.255 mc. Please specify desired frequency with order.

**only \$29.95**



**The Receiver Without Equal —  
The Well Known RT1-3V**

**\$39.95**

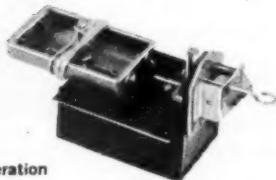
- Size: 1½" x 2¼" x 1"
- Weight: 2 oz. complete
- Power: 3 volts total
- Temperature Range: Guaranteed to operate between 0°F to 130°F
- Completely transistorized
- Factory pre-tuned



**No Wiring, No Soldering,  
No Tuning With JUPITER COMPACT —  
A Complete RC Unit!**

**\$39.95**

- No electrical installation
- Weight: complete with battery and escapement, 4 oz.
- Size: 2½" x 3" x 2¼"
- Power: only 3 volts required
- Completely transistorized
- Factory pre-tuned
- Guaranteed for 0°F to 130°F operation



**Economy-Sized PIONEER  
Delivers Big Performance**

**\$21.95**

- Size: 2½" x 1½"
- Weight: 1½ oz.
- Economical 3 volt operation
- Operates standard escapements
- Temperature stabilized
- Finest quality printed circuit construction
- Factory tuned and tested



Ask for **FREE Catalog**

**CG ELECTRONICS CORPORATION**

Dept. B-8 • 15000 Central S. E., Albuquerque, New Mexico

# MAN

31st Year of Publication

## MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

August 1959

Vol. LXI, No. 2

### CONTENTS

#### CONSTRUCTION

The Tri-Traveler	9
Houdini	15
Dizzy Bee	21
Delta Dart	25

#### ARTICLES

A Place to Fly	13
Souped-Up Pre Fabs	18
Wing Loading Is Three Dimensional	23

#### FEATURES

Foreign Notes	2
MAN at Work	4
Early Birds	16
Engine Review	24
Varicomp Switcher	29
Radio Control News	28

WILLIAM WINTER, Editor

WITTICH HOLLOWAY, Art Director

Contributing Editors: Peter Chinn (England),

Don Grout, Ed Lorenz, Ted Martin,

Bruce Wennerstrom, Harry Williamson

Executive and Editorial Office:

351 Fifth Avenue, New York 17, N. Y.

Advertising Manager, N. E. Slane, 551 5th Ave.

New York 17; West Coast Adv. Mgr., Justin

Hannon, 4708 Crenshaw Blvd.

Los Angeles 43, Calif.

Published Monthly by Air Age, Inc. Editorial and Business Offices: 551 Fifth Ave., New York 17, N.Y. Jay P. Cleveland, President; Y. P. Johnson, Vice Pres.; Louis V. DeFrancesco, Treas.; G. E. DeFrancesco, Sec. Second Class Postage paid at Columbia, Missouri. Additional Second Class Entry at New York, N.Y.

Copyright 1959 by Air Age, Inc.

Printed in U. S. A.

by  
William  
Winter



► Pan American's new film "Wings for Tomorrow," a 13½ minute, 16mm motion picture in sound and color, contains superb footage on models (and 707's) in action. It is deftly put together. To make a poor joke, the story gets in everything but motherhood and Christmas. It explains PAA-Load flying, modeling in general, ties all this in with careers and enobling influences (ahem), plugs Pan American, follows Ken Scribner, a Pan Am pilot from a knee breeches boy to adult Clipper Captain. Any good film seems too short. This one gets organized out yonder, then pours across the course at Mach 2. We suspect many a club will run it more than once in the same evening. Man, how a little Jetex job soars and banks majestically, like a 707 waiting its shot at the approach, when followed in slow motion.

Only trouble with the preview, attended by the model eds, Dallas Sherman (the payload pappy), and George Gardner, was the fascinating twin pusher "young Scribner" flew. In a moment of madness, mutual probably, yours truly had concocted the design for Al Lewis. That the story teller had this mock museum piece reconstructed from a ten-year old magazine plan suggested that Pan Am wanted, and got, the most in realism. The footage left on the cutting room floor would make wonderful entertainment for modelers who would take their models straight. Too bad, Pan-Am couldn't package what was left over. story or no story.

Wings for Tomorrow can be booked through the Academy of Model Aeronautics, 1025 Connecticut Ave., Wash-

ington, D.C.; Educational Director, Pan American World Airways, and will be available in offices of Ideal Pictures, and at many District Sales Offices of Pan American World Airways. MAN at Work suggests that you invite the town fathers, or recalcitrant officials, to a showing. You may end up with the rotunda in city hall for the next stunt contest!

The story incidentally was more perfect than even Pan Am knew. Talking of the Wright Brothers; who should be on screen, but C.O. "Pop" Wright, who has been flying these things since 1917. And a market tip: buy Jetex!

► Most recent "attempt" to fly all day with that ugly RC model was grounded by the stork, of all things. When our CD, Bill Poythress, couldn't make it, the various (Continued on page 62)



NEXT MONTH'S COVER Miniplane

#### SUBSCRIPTION PRICES

SEE PAGE 57 FOR ANNIVERSARY SUBSCRIPTION OFFER

Payment from all countries except Canada must be in U.S. Funds.

CHANGE OF ADDRESS—Send to MODEL AIRPLANE NEWS, SUBSCRIPTION DEPT., 551 FIFTH AVENUE, NEW YORK 17, N.Y. at least one month before the date of the issue with which it is to take effect. Send old address with the new, enclosing if possible your address label or copy. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.

#### PLANE ON THE COVER

When Paul Mantz, famous stunt flier, used Thimble-Drome Flying Tiger model to plan air action scenes for his TV series "Rogue for Hire," to be released this fall, young admirers Tommy Sparks and Mike James were lucky to be on set for a demonstration by Mantz. Yes, the P-40 in background is the real thing. Photographer even got a vapor trail!





FOR INSTANT STARTING

FOR DYNAMIC POWER

FOR FLASHING SPEED

NOW AT  
NEW LOW PRICES

ALWAYS USE **OK** ENGINE FUELS

FOR ALL GLOW ENGINES . . .

45¢

1/2 PINT

80¢

PINT

\$1.40

QUART

\$4.50

GALLON

"OK" DIESEL FUEL . . . 80¢ PT.

Minimum takeoff and maximum climb with plenty left for flashing acceleration in maneuvers. Plus purring smoothness when you throttle back to cruising.

That's what you get from "OK" Glow or Diesel Fuels. More flash, fun and action. Finer control with fewer adjustments and coaxing.

"OK" Fuels leave your engines clean, free from varnish or residue. Ready to go, even after long usage. Whether you're in big time competition or flying for fun, insist on "OK" Engine Fuels . . . the kind that give you the 3 big features you want.

BUY OK GLOW FUEL IN THE NEW  
ECONOMY SIZE GALLONS AND SAVE!

It's the economical way to buy OK Fuel particularly for use in  
meets, contest flying, clubs, or just for your own use.

Only \$4.50

COMPLETE  
AS SHOWN

\$1.25



FOR SUPERB ENGINE OPERATION  
GET AN "OK" ACCESSORY KIT

CONTENTS: 1/2 pint OK Glow Fuel.

1 filler spout with plastic tubing.

1 set battery leads fully assembled and  
soldered with battery connection and  
glow plug clip.

1 combination plug wrench and screw  
driver.

For Use with All Model Engines

AT LEADING  
HOBBY SHOPS  
EVERYWHERE

HERKIMER TOOL & MODEL WORKS

210 MARSH ST.

ROCHESTER, N. Y.





7.75	Pes Wee Nylon 4 1/2"-2 1/2"	20
2.00	Whisper Nylon: 9/6, 10/6	75
7.95	Tornado Nylon: 8 1/2" at 6" 3.40	75

ADVANCED

9" or 10" x 12" . . .	35
Formulas: 10" x 9" 3-6 . . .	35
Formulas: 10" x 7" 4-6 3-6 . . .	35
Formulas: 10" x 4" 3-6 3-6 . . .	35
Formulas: 10" x 3" 3-6 3-6 . . .	35
Formulas: 10" x 2" 3-6 3-6 . . .	35
Formulas: 10" x 1" 3-6 3-6 . . .	35
Formulas: 10" x 1/2" 3-6 3-6 . . .	35
Formulas: 10" x 1/4" 3-6 3-6 . . .	35
Formulas: 10" x 1/8" 3-6 3-6 . . .	35
Formulas: 10" x 1/16" 3-6 3-6 . . .	35
Formulas: 10" x 1/32" 3-6 3-6 . . .	35
Formulas: 10" x 1/64" 3-6 3-6 . . .	35
Formulas: 10" x 1/128" 3-6 3-6 . . .	35
Formulas: 10" x 1/256" 3-6 3-6 . . .	35
Formulas: 10" x 1/512" 3-6 3-6 . . .	35
Formulas: 10" x 1/1024" 3-6 3-6 . . .	35
Formulas: 10" x 1/2048" 3-6 3-6 . . .	35
Formulas: 10" x 1/4096" 3-6 3-6 . . .	35
Formulas: 10" x 1/8192" 3-6 3-6 . . .	35
Formulas: 10" x 1/16384" 3-6 3-6 . . .	35
Formulas: 10" x 1/32768" 3-6 3-6 . . .	35
Formulas: 10" x 1/65536" 3-6 3-6 . . .	35
Formulas: 10" x 1/131072" 3-6 3-6 . . .	35
Formulas: 10" x 1/262144" 3-6 3-6 . . .	35
Formulas: 10" x 1/524288" 3-6 3-6 . . .	35
Formulas: 10" x 1/1048576" 3-6 3-6 . . .	35
Formulas: 10" x 1/2097152" 3-6 3-6 . . .	35
Formulas: 10" x 1/4194304" 3-6 3-6 . . .	35
Formulas: 10" x 1/8388608" 3-6 3-6 . . .	35
Formulas: 10" x 1/16777216" 3-6 3-6 . . .	35
Formulas: 10" x 1/33554432" 3-6 3-6 . . .	35
Formulas: 10" x 1/67108864" 3-6 3-6 . . .	35
Formulas: 10" x 1/134217728" 3-6 3-6 . . .	35
Formulas: 10" x 1/268435456" 3-6 3-6 . . .	35
Formulas: 10" x 1/536870912" 3-6 3-6 . . .	35
Formulas: 10" x 1/1073741824" 3-6 3-6 . . .	35
Formulas: 10" x 1/2147483648" 3-6 3-6 . . .	35
Formulas: 10" x 1/4294967296" 3-6 3-6 . . .	35
Formulas: 10" x 1/8589934592" 3-6 3-6 . . .	35
Formulas: 10" x 1/17179869184" 3-6 3-6 . . .	35
Formulas: 10" x 1/34359738368" 3-6 3-6 . . .	35
Formulas: 10" x 1/68719476736" 3-6 3-6 . . .	35
Formulas: 10" x 1/137438953472" 3-6 3-6 . . .	35
Formulas: 10" x 1/274877906944" 3-6 3-6 . . .	35
Formulas: 10" x 1/549755813888" 3-6 3-6 . . .	35
Formulas: 10" x 1/1099511627776" 3-6 3-6 . . .	35
Formulas: 10" x 1/2199023255552" 3-6 3-6 . . .	35
Formulas: 10" x 1/4398046511104" 3-6 3-6 . . .	35
Formulas: 10" x 1/8796093022208" 3-6 3-6 . . .	35
Formulas: 10" x 1/17592186044416" 3-6 3-6 . . .	35
Formulas: 10" x 1/35184372088832" 3-6 3-6 . . .	35
Formulas: 10" x 1/70368744177664" 3-6 3-6 . . .	35
Formulas: 10" x 1/140737488355328" 3-6 3-6 . . .	35
Formulas: 10" x 1/281474976710656" 3-6 3-6 . . .	35
Formulas: 10" x 1/562949953421312" 3-6 3-6 . . .	35
Formulas: 10" x 1/1125899906842624" 3-6 3-6 . . .	35
Formulas: 10" x 1/2251799813685248" 3-6 3-6 . . .	35
Formulas: 10" x 1/4503599627370496" 3-6 3-6 . . .	35
Formulas: 10" x 1/9007199254740992" 3-6 3-6 . . .	35
Formulas: 10" x 1/18014398509481984" 3-6 3-6 . . .	35
Formulas: 10" x 1/36028797018963968" 3-6 3-6 . . .	35
Formulas: 10" x 1/72057594037927936" 3-6 3-6 . . .	35
Formulas: 10" x 1/144115188075855872" 3-6 3-6 . . .	35
Formulas: 10" x 1/288230376151711744" 3-6 3-6 . . .	35
Formulas: 10" x 1/576460752303423488" 3-6 3-6 . . .	35
Formulas: 10" x 1/1152921504606846976" 3-6 3-6 . . .	35
Formulas: 10" x 1/2305843009213693952" 3-6 3-6 . . .	35
Formulas: 10" x 1/4611686018427387904" 3-6 3-6 . . .	35
Formulas: 10" x 1/9223372036854775808" 3-6 3-6 . . .	35
Formulas: 10" x 1/18446744073709551616" 3-6 3-6 . . .	35
Formulas: 10" x 1/36893488147419103232" 3-6 3-6 . . .	35
Formulas: 10" x 1/73786976294838206464" 3-6 3-6 . . .	35
Formulas: 10" x 1/147573952589676412928" 3-6 3-6 . . .	35
Formulas: 10" x 1/295147905179352825856" 3-6 3-6 . . .	35
Formulas: 10" x 1/590295810358705651712" 3-6 3-6 . . .	35

Diarmid Brass Pew-Wing 2 1/2" w. w. 1/2"	
1 1/2" 2 1/2" 3 1/2"	ea. 50
L 2 1/2" w. 1 1/2" h. 1 1/2" 2"	
3 1/2" 3 1/2" 3 1/2" 4"	ea. 1.00
Man. 2 1/2" 2 1/2" 2 1/2" 2 1/2"	1.50

[illegible]

2 1/2" -1.40; 3" -1.75  
Sponge Rubber (sr) 1/2" -1" 30c  
1 1/2" -1 1/2" 35c 1 3/4" -40c 1 1/2" -45c  
1 1/2" -60c 2 1/2" .85  
Tail Wheels 1/2" -3/4" 1" .15

96	Tractor Pumps (in 1/4" or 1/2" ...)	1.40	
97	2-1/2" - 2-5/8" 2 1/2" 2 1/2" -40c	.60	
98	2 1/2" 1.00 3 1/2" 1.25 1 1/2" 1.50		
99	Pumps (in 1/4" or 1/2" ...)	8.45	
99	Wheel Collars (Retainers) or	.30	
99	<b>ACCESSORIES &amp; MISC.</b>		
	BERKLEY control lines		
99	.009, .010, .012 - 2' 38"	.50	
99	.009, .010, .012, .014 2' 70"	.45	
99	Stranded .010, .012 95" 1.00;		
99	70" 1.25; .009"	2.50	
	exp. knowledge, no experience and		
	pay to order.		
	<b>MOD-AD AGENCY, Inc.</b>		
	146-148 W. 22nd St.		
	New York 11, N.Y.		
	MISC. Aerodynamics of Model Pumps		
	1.50; Model Air, Eng - 3.50; Model		
	Plane Manual or Slide, & Flying		

## AHC BEST BUYS

product you are looking for. Our customers are the best in business. Find quality for less—without the quality of these products with money back guarantee.

**TRIFIGHT 700 \$4.95**  
 Red hot speedster from A/J Aircraft.  
 24" model is far class A to C engines.  
 All profits left. Order from AJAC.

**TOP VALUES**  
**K&B .38C**  
 Based now power plant from 1988 Alfa. For less than \$1000.00. For less than \$1000.00. For less than \$1000.00.  
 "Chassis of Choice."  
**1995**

**AMBROID  
MODEL CEMENTS**  
Take Ambroid's Universal

Liquid Cement, for example.  
Prepared by top modelers.  
Strong, fast-drying, hot  
foot-proof and waterproof.  
1 lb. or 2 lbs. 50¢

**34" Coast Gd. Patrol \$24.95**  
A fabulous radio control job from



**SPACE JET 21** \$1.49  
Excellent stunt model for controlling fans — Carl Goldberg Models. Has a

21" wingspan, suits with 1/2A eng. of sport biplane of the "skinner".

**POCKE-WULF "190" \$5.95**  
Brand new Berkeley U-Control job for 190-in. 16 new wingspan. "K" in the

**FAIRCHILD PT-19 \$24.95**  
One of our most popular Radio Control models—190-in. 16 wingspan. 72" wingspan.

**PYLON** control lines  
800, 010, 012, 014, 016, 3-37 40

010, 012, 0, 016 2/20	1.75	Comment: A glass, Cometic, Teflon-coated
Stressed 015 - 016 x 2/20	1.75	Acrylic Plastic Balsa Tube
015 - 016 x 2/20	1.75	Rubbing Compound or Wax
Plastic 3-line 87 010 or 012	3.75	
Nylon Lines A-4	.25	
U-Rally Cord, Handle or wire	7.75	
Cable 015 8.75 016	8.75	
Darwin Metal Plastic Band	1.25	
Vertical Metal Plastic Band	1.50	
Construction Plastic 1/2 inch handle 8		
plastic 1/2 A 2.25 A-8	2.50	
metal Plastic 4' or 8'	.75	

## AND HANDY ORDER FORM

ter, Inc., 146 West 22nd St., New York 11, N. Y.

## AND HANDY ORDER FORM

ter, Inc., 146 West 22nd St., New York 11, N. Y.

**Buy With Confidence at AHC . . . Where You Get Not One But TWO GUARANTEES!**  
**Manufacturer's Quality Guarantee & AHC'S Famous 14 Day Money Back Guarantee**

**A Verified \$25.00 Value!**

**MADE TO LATEST FCC REGULATIONS, TOO!**

**ext Page**  
New York 11, N. Y.





# The Tri-Traveler

by  
**DAN  
LUTZ**



*You can't ride in it, but this "trike" Champion, is as close to big plane realism as you can get. Fine performer on those .049's.*

Over 200 successful flights in all kinds of weather made the author happy with the results of time well spent on detail and paint job.



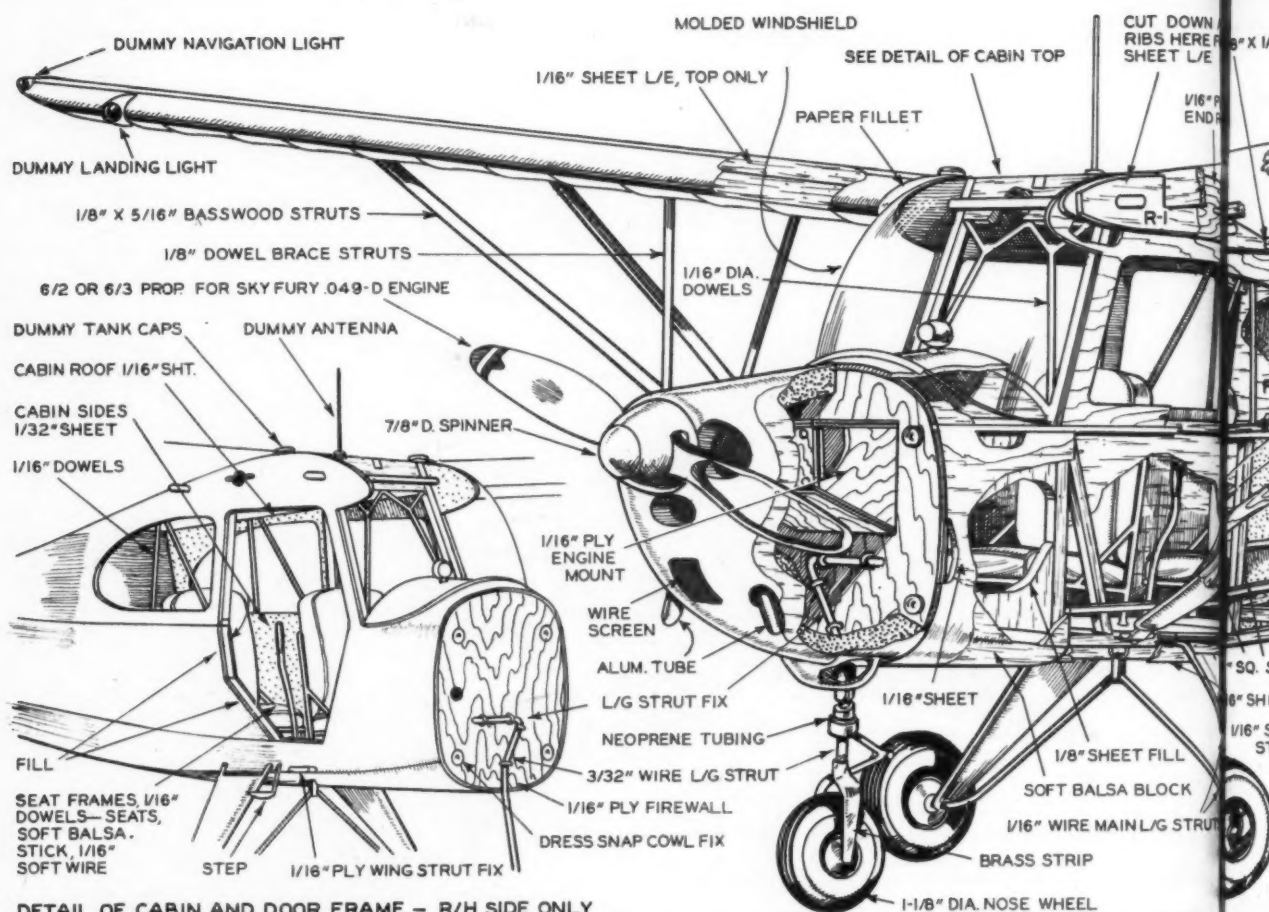
Scale tail surfaces and near-scale dihedral make Lutz's Champion exceptionally accurate free-flight scale. Yep, the door works!

► Descended from the famous Aeronca Champion, the new Champion Traveler is manufactured by the Champion Aircraft Corp., Osceola, Wis. The new Champions have increased horsepower, new oleo-type shock-absorbing landing gear, completely upholstered interiors and a flashy new paint and trim combination. This outstanding airplane makes a rewarding model.

At the 1958 Nationals, the model was relatively new and not well tested, but later in the season took second in the Ninth Annual Flightmasters Scale Contest, Inglewood (Calif.) being beaten out by a ship with two-speed motor permitting full-power take-off and throttled-back descent to power-on landing. At the time of writing the Tri-Traveler has logged over 200 flights in all kinds of weather. Scale tail area and near-scale dihedral don't seem to affect performance adversely.

The box-type fuselage is constructed from 3/8" sq. balsa with the nose portion planked with 1/16" sheet balsa. Cut out the two upper cabin side frames from 1/16" plywood. Drill the wing dowel holes in the right and left frames at the same time. This assures both wings have the same angle of incidence which is very important. Add the bulkheads, 1/16" balsa rudder keel and stringers. Don't forget the 1/16" x 1/32" balsa cap strip on the bottom longerons which will serve as a covering ledge to keep the covering from sticking to the fuselage upright braces when doped.

The main landing gear mount is cut from 1/16" plywood. Sew the 1/16" piano (Continued on next page)



DETAIL OF CABIN AND DOOR FRAME - R/H SIDE ONLY



Wing lights, gas caps, antenna, typify details that make a stand-out craft. Cabin side slope automatically provides the dihedral.

## The Tri-Traveler . . . Continued

wire gear to this mount and glue several times. The nose gear is bent from 3/32" piano wire and held to the firewall by J-bolts. The firewall and engine mount box are also cut from 1/16" plywood. When building up the engine mount box, which may be altered to fit any 1/2A engine, make certain that at least four degrees of downthrust are built in.

Install the operating cabin door on the right side of the fuselage if you intend to add the interior details to your model. The seats are built from 1/16" dowel with soft balsa cushions. The cabin floor is 1/16" sheet balsa with

the sides and top being 1/32" sheet balsa. To simulate the upholstered panels and seat cushions, colored flock is used. This flocking compound can be purchased from any arts and crafts store. It is very light and easy to apply.

A trip to your local airport will give you unlimited ideas for the numerous small details. The cowl is built up from balsa blocks, then hollowed out. Use four large dress snaps to hold the cowl to the firewall. A small piece of wire screen and a length of 3/16" dia. aluminum tubing will make the details for the cowl.

The wing tips and tail outlines of the original model were formed over a template cut from 1/4" sheet, with the inside contours as a guide when cutting out the templates; the strips of wood were boiled for ten minutes before bending them around the templates. The plans show sheet balsa edges for simplicity. The 28 wing ribs are cut out, pinned together and sanded to the correct airfoil shape. While the wing ribs are still pinned together, drill a 1/4" hole through them where the rear spar is located. Cut out the 1/4 x 3/4" notch for the main spar, allowing an added 1/16" depth for the 1/16" balsa leading edge sheeting. Install the 1/16" wire hooks and add the 1/16" plywood end ribs which extend the full chord of the wing. Drill the two 1/4" holes in the end ribs to match the two 1/4" dowels on the fuselage. Make certain that both wings are mounted at the same angle.

All control surfaces are attached with soft iron wire as hinge material. The wing struts are constructed from 5/16 x 1/4" basswood or hard balsa. Use thin brass or aluminum to make the fittings. Use 1/16" dowel pegs to help hold the fittings in place. The length of the wing struts controls the amount of dihedral, which should be 1-3/4" at each tip. Follow the plans closely when assembling the wing struts, making

(Continued on page 36)





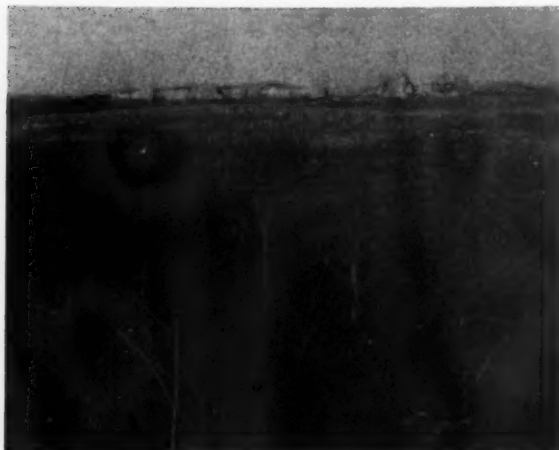


Fort Wayne, Ind., Mad Modelers, had circles in McMillan Park as long ago as 1947. Shown are a 50 and 70 ft. circle—club then hoped for new additional UC circles of 70, 60, and 42 ft.

a  
place  
to  
fly



Many cities have had Modelports for 10 to 15 years, others in process of construction. Dayton takes theirs seriously.



**Before** Wilderness of woods and brush marked site of the future impressive flying area in Dayton outskirts.



**After** City fathers—Dayton by no means unique—consider cost of flying area improvement worthy investment.



Two-level "control tower," one feature of the Charles A. Donnelly Modelport, in New Orleans.

*Professional analysis of 30 "success stories," offers proof—useful tips—that you can do something about flying-site problem.*

**by WILLIS C. BROWN, AMA #1**

Specialist for Aviation Education  
U.S. Office of Education

► Do you want to see that impressive level-green expanse of the ideal flying site in your town? Others have done it. You really can have that flying site you have always wanted, if you don't "goof" on your planned strategy.

Don't give me that old story about getting kicked out of your local park, or the town Fathers passing an ordinance forbidding your flights as a noisy nuisance. Perhaps these real quotes sound familiar? They are from groups that had nothing but bad luck until they saw the light.

"At various playgrounds and open areas in the city our 1/2 A models are flown regularly without interference.

FACILITIES

FINANCE

LEADERSHIP

MISC.

How  
much  
by co  
in se  
It se  
perm  
leave  
noise  
son"  
the f  
We  
yards  
out v  
our  
taken  
tion  
long  
Bu

During

MOD

# TABULATION OF DATA FROM STUDY OF FLYING SITES IN 30 COMMUNITIES (1959)

WILLIS C. BROWN

FACILITIES	CONTROL LINE	ONE CIRCLE	
		TWO CIRCLES	
		THREE OR MORE	
		CLAY TOP	
		BLACK TOP	
		GRASSED	
		FENCED	
FINANCE		CLUB OWNED	
		MUNICIPAL OWNED	
		PRIVATELY OWNED	
		MUNICIPAL MAINTAINED	
		CLUB MAINTAINED	
		LIABILITY INSURANCE	
LEADERSHIP		SPONSORED BY CLUB	
		SPONSORED BY RECREATION DEPT.	
		SPONSORED BY OTHER	
		CITY OFFICIAL	
		STATE OR FEDERAL OFFICIAL	
MISC.		NOISE IS A REAL PROBLEM	
		NOISE IS NOT A PROBLEM	
		ELECTRIC LIGHTS & P.A. SYSTEM	
		FREE FLIGHT OR RADIO CONTROL	

However, the larger motors made too much noise and we were squeezed out by complaints." —"always had trouble in securing a site for flying our models. It seems that we no sooner obtain a permanent site than we were asked to leave. Complaints of neighbors over noise, we surmised was the usual reason"—"our Police enforced a ban on the flying of model planes in our parks. We turned to various fields—school yards—complaints would be lodged, and out we went. We reached the end of our patience when a cemetery caretaker invited us to use an unused portion of the cemetery—imagine how long this lasted."

But perhaps these five actual stories

from those who have found different successful methods may give you the idea you need.

1. From the Folsom, Pa. Golden Eagles R. C. Club comes a letter quoted in part. "We have been having a considerable amount of trouble finding and maintaining a flying site for our club members in this area. On the 28th of November (1958) the club officers went to the——Oil Laboratory, to see if we could obtain written permission to use their fields as our future sites.

We found the management more than willing to cooperate and give their permission. A meeting of club members was called, and a basic set of rules written. These rules were also submitted

to the ——Oil Co. management. The rules were voted on and approved."

The letter adds the thought that the management were evidently impressed by the rule making and self governing features of the Academy of Model Aeronautics. They probably gave approval because of this and the liability insurance features inherent in AMA membership.

Notice that this club had a plan which included self governing rules—something tangible on which the management could vote, a very business-like way of going about getting a flying site. Have you carefully planned and tried this businesslike approach?

2. Another (Continued on page 48)

During dedication (1954) of Model Flying Circle, Boulder, Colo., sponsored by Civil Air Patrol, City of Boulder, Boulder Exchange Club.

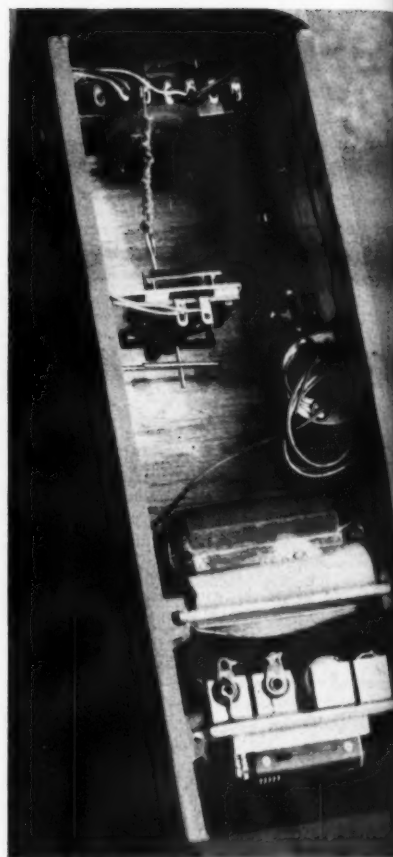






Straight wings and flat sides, yet looks fast. Bubble, few stringers, and graceful tail out-

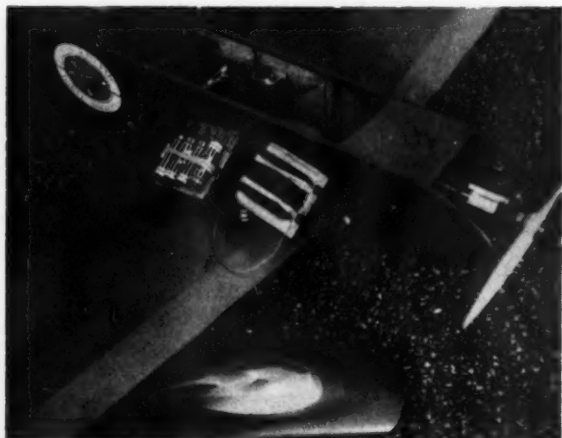
lines give that going-places look. Engine is accessible, Roto-Valve and linkage easily put in.



Front to back: Battery-box tray, Gyro 22X r/cvr, Bonner motor-control SN, Bonner Varicomp esc'p.

# HOUDINI

*Once upon a time they said it couldn't be done but low wings have it over most cabin jobs in RC. Try this .15 pronto.*



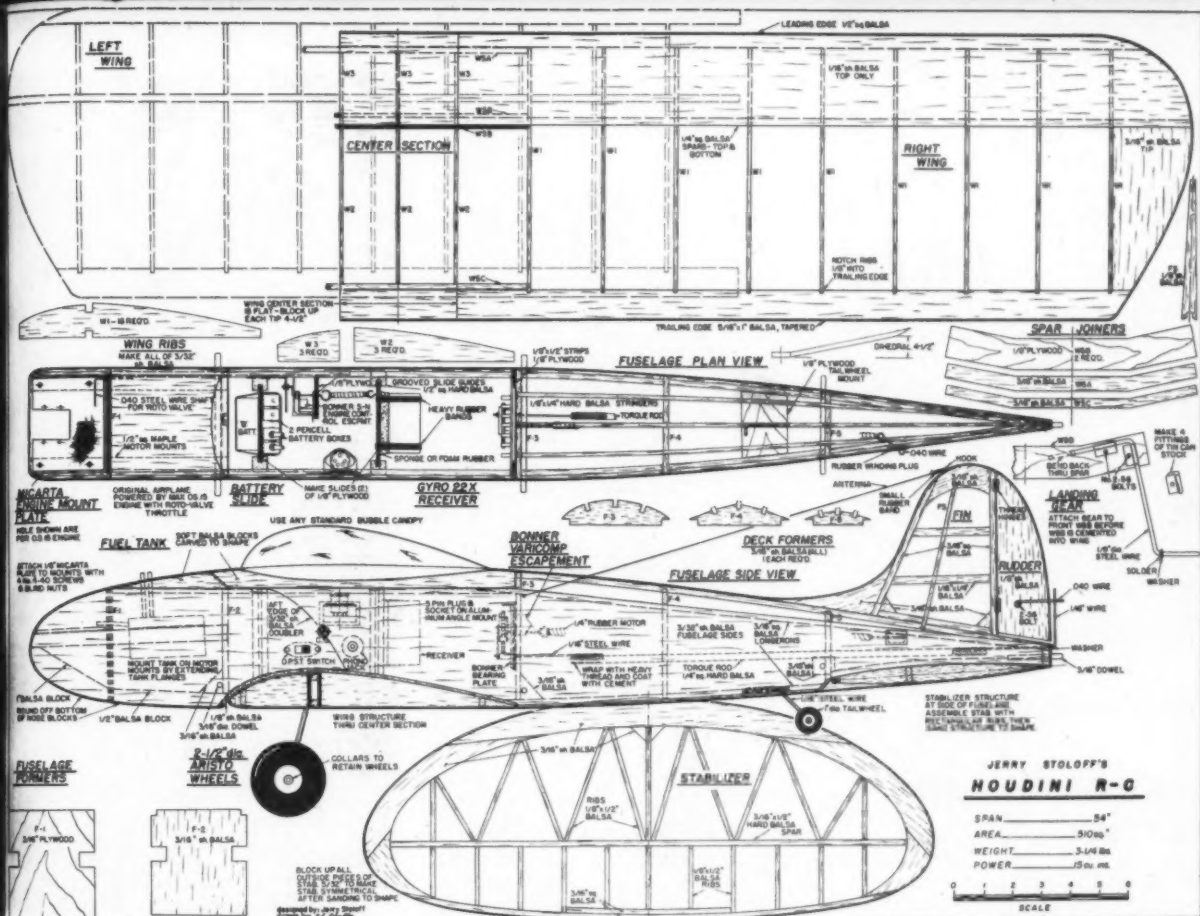
Top lifts off, and receiver and battery trays both slide out easy like. One thing about low wings—you'll never pop wing in loop!

► *Editor's Note—Having flown the first Houdini in the spring of 1958, found that it will break out of a turn within 90 degrees if not thrown in steeply. With normal entry it will complete a 360 on its own, perhaps losing little altitude. Heavy-on-rudder entries (no hold) start it down but recovers. Responsive. Flown tame, no worse than many cabins, better than some. If stunted, flat-trim gave long, screeching pull-outs. Pays off a bit on approach turns in wind but well worth it!*

Low wings once were thought unstable and difficult to fly. Houdini will do such maneuvers as rolls, split S, wing-over, etc., without difficulty. It has been flown for more than a year with mishaps due only to radio failure. Houdini performs as well, if not better, than most high wing models.

Houdini, like any single-channel low wing, has excessive dihedral with enough angular difference between the wing and stab to insure a more rapid pull-out from a vertical position. The landing gear is placed well back, slightly ahead of the center of gravity, for straight tracking without tendency to ground loop. The rudder was built so that when the top of the fuselage was covered, the silk would cover the rudder at the same time, fairing it into the fuselage. This enhances the appearance and adds strength. Construction is simple but sturdy. Weight is 3½ pounds.

**Fuselage and rudder:** The two fuselage sides are cut out of hard straight-grained 3/32" thick sheet balsa, as are the two doublers. The doublers and the mating area of the fuselage sides are given a coat of cement and set aside to dry separately. When dry another coat of cement is applied to surfaces, the parts clamped together.



by JERRY STOLFF

Mark off on the inside of the fuselage sides the position of all the stringers and uprights and cement them in place. Firewall F-5 is cut out of 3/16" plywood as per template. Bulkhead F-4 is cut out of 3/16" sheet balsa as are F-1-2-3. Cement formers F-4-5 in place. Sand inside of fuselage at the rear section so that when it is cemented together, there is a proper joint. The cross braces are added and the formers F-1-2-3 cemented in place. The motor bearers are pushed through former F-5 and cemented securely to the inside of the doublers. The 1/4" stringers are cemented in their respective slots of the top formers, making sure to taper them so that they flair into the rear of the fuselage.

The bottom nose blocks are cut out and cemented securely. The gussets, where the wing and tail dowels go through the fuselage, are cemented in place. The bottom half of the fuselage then is covered with 1/16" sheet balsa with the grain running crosswise. The tail gear is bent to shape from 1/16" diameter music wire and fastened to the 1/4" plywood mount. It is then cemented on the inside of the fuselage at its proper location with the gear protruding through the bottom of the fuselage. The top, front cowl block is cut out slightly oversize and just tacked in place with small dabs of cement. The removable hatch block also is cut slightly oversize and two 1/4" sq. pieces of balsa are cemented on the underside, running lengthwise as guides to keep the cowl block in its proper location. The blocks then may be sanded to conform to the fuselage width and contour.

The rudder is constructed flat with the exception of the 1/16" x 1/4" caps which are assembled after the rudder is cemented in place. The fuselage, including the rudder, is



Cranking the .13, Jerry readies Houdini for an ROG take-off. Get easy-to-work microswitch—this rudder job lives up to its name.

thoroughly sanded and the bottom nose blocks rounded off. The removable hatch is separated from the rest of the fuselage. You now are ready for the radio installation, keeping in mind that the model must balance at the position shown on the plan. The 1/4" square grooved uprights which hold the battery tray and the receiver are cemented to the inside sides of the fuselage. The escapement is mounted on 1/4" plywood and cemented in position, making sure that the torque (Continued on page 31)

FULL SIZE PLANS AVAILABLE. SEE PAGE 60.



# Early Birds

by DOUGLAS ROLFE

## Number 7

### DEVELOPMENT OF THE PUSHER BIPLANE

The pusher biplane was introduced by the Wright Brothers, Voisin, Curtiss and the Farman Brothers. There were others, of course, but not of such historical importance. The Wright was in effect a dead-end but all the others were developed until the pusher boxkite became obsolete.

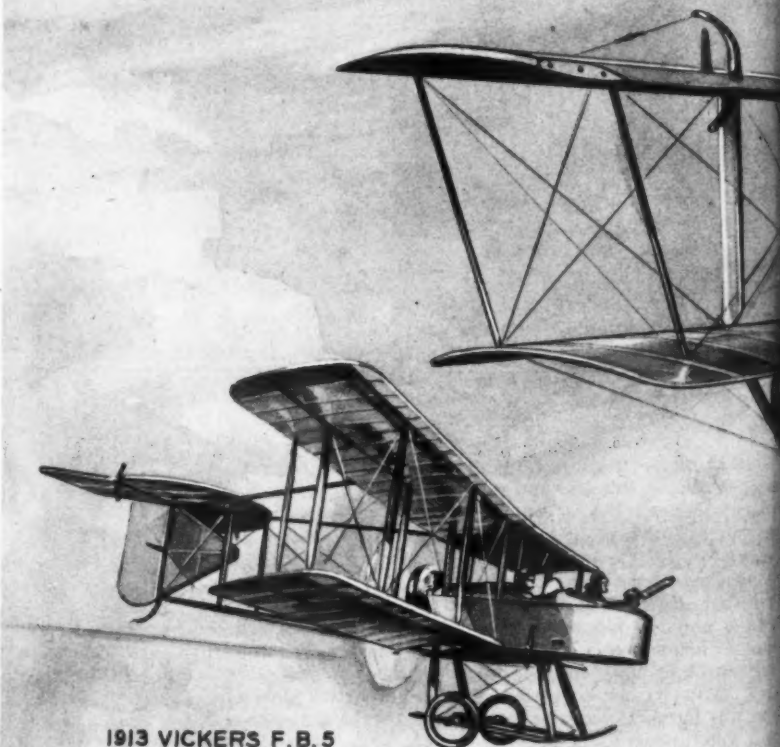
The Grahame-White boxkite shown was a modified Henri Farman in use 1909-1911. The Maurice Farman "Longhorn" (after the lengthy front skids) belongs to this period. Both Henri and Maurice Farman dropped the front elevator in later types, introduced the nacelle, but retained the four-wheel landing gear.

The clumsy-looking Maurice Farman with front elevator and biplane tail was slow but very easy to fly. The Wrights also abandoned the front elevator and one of their last designs, the "Tin Cow" (by mistake included in the last installment covering tractor biplanes) had a bonafide fuselage.

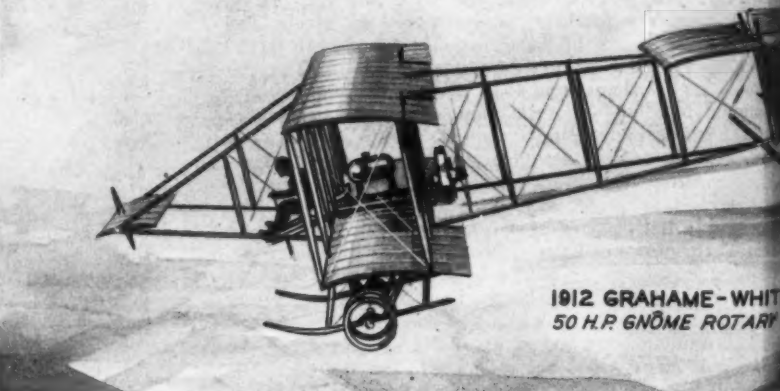
Vickers F.B.5 was prototype model of famed W.W.1 "Gun Bus". The Voisin Type Q was a brilliant example of fine engineering in these far-off days and largely of metal construction. Note the oleo strut wingtip skids!



1912 HENRI FARMAN  
80 H.P. GNÔME ROTARY

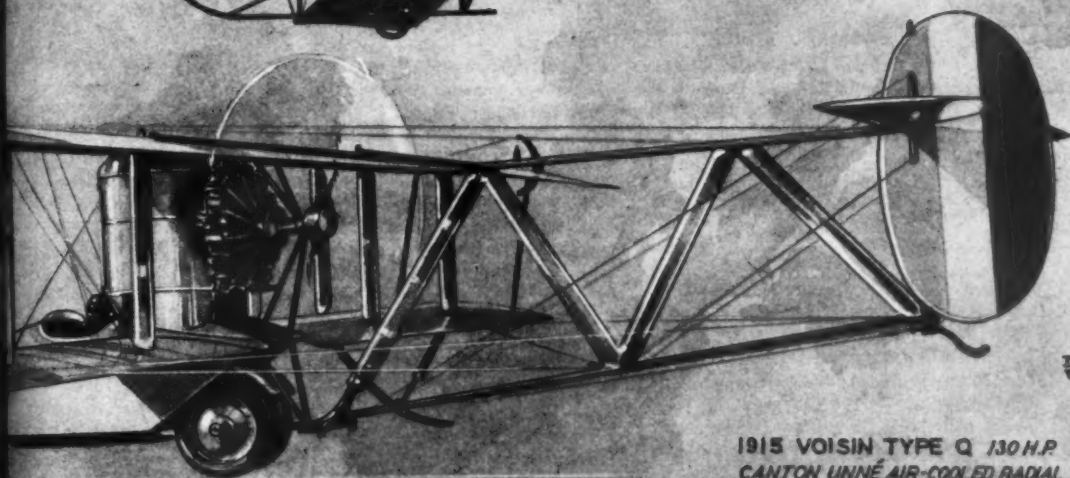
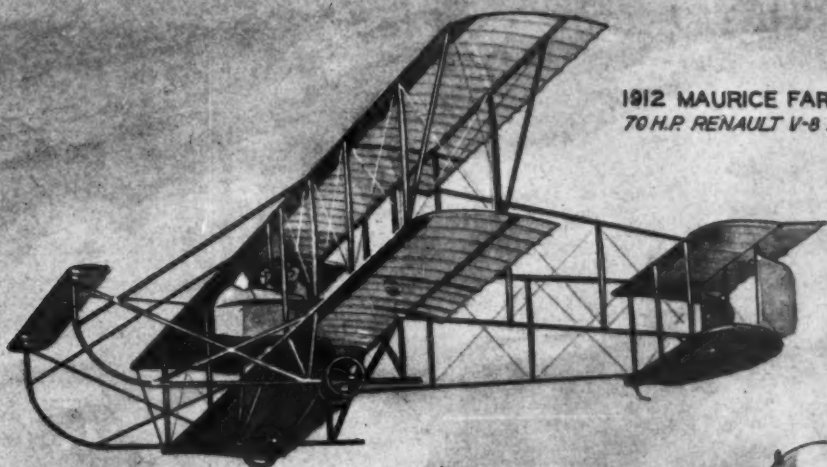


1913 VICKERS F.B.5  
100 H.P. GNÔME ROTARY



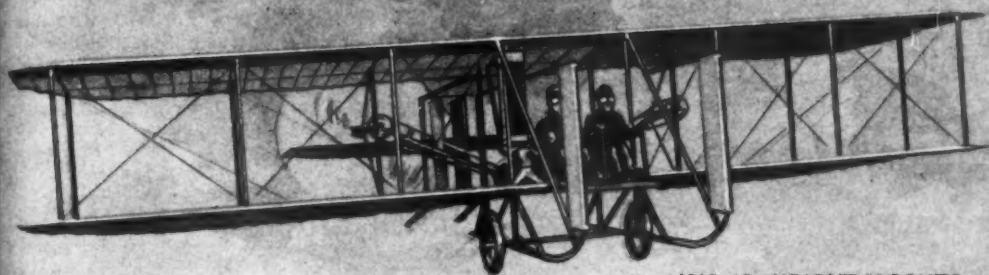
1912 GRAHAME-WHITE  
50 H.P. GNÔME ROTARY

1912 MAURICE FARMAN "LONGHORN"  
70 H.P. RENAULT V-8 AIR-COOLED ENGINE

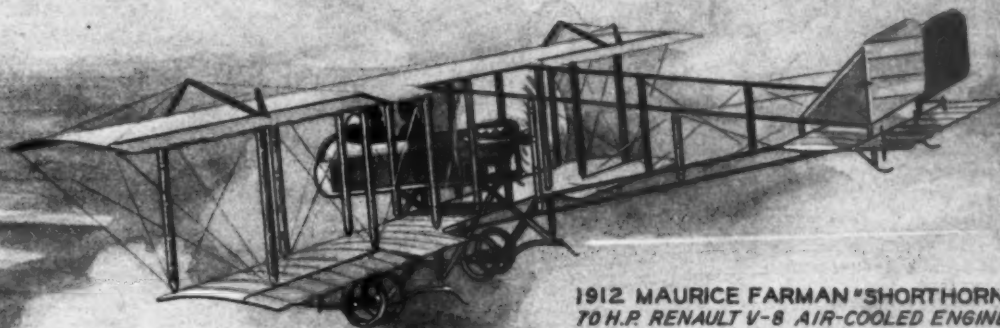


DOUGLAS  
ROLFE

1915 VOISIN TYPE Q 130 H.P.  
CANTON UNNÉ AIR-COOLED RADIAL



1912-13 WRIGHT "SCOUT"  
50 H.P. WRIGHT 8-CYL. ENGINE



1912 MAURICE FARMAN "SHORTHORN"  
70 H.P. RENAULT V-8 AIR-COOLED ENGINE



Kurt Reich, eight, has understanding helper in his dad, George, 37, US Wakefield finalist for

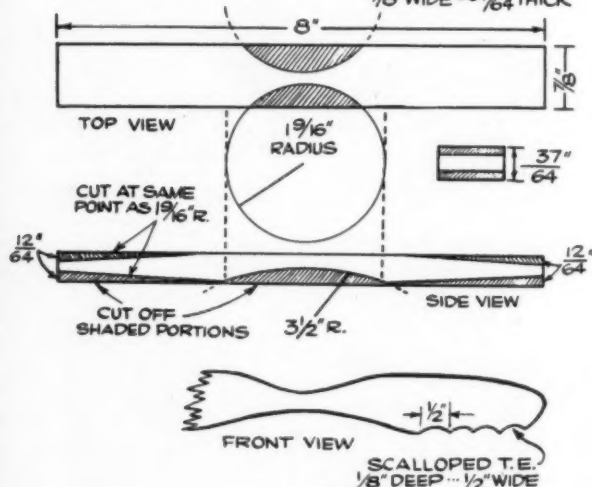
1958 and contest flier for more than 20 years. Model is popular Ranger. Pix, Cleveland Press.

# Souped-Up Pre-Fabs

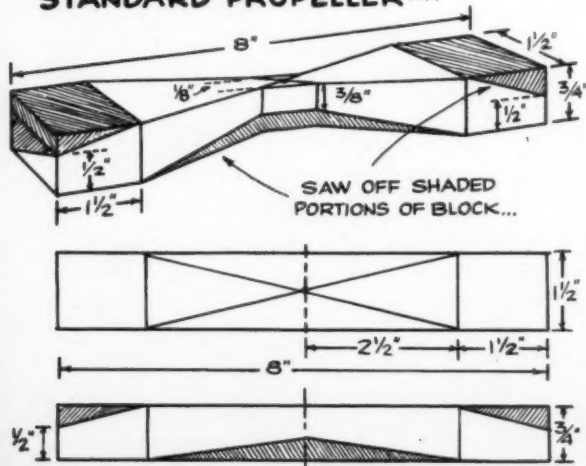
by CHARLES TRACY

*Who'll be first to crack three minutes with simple kit? Some promising tips.*

## GETZLOFF PROP ... 8" DIA - 16.61" PITCH 7/8" WIDE - 37/64" THICK



## STANDARD PROPELLER....



## TOP-AIRFOIL SHAPE...



WRAP WET SILKSPAN PAPER RIBBONS OVER WING AND FORM TO HOLD Balsa SHEET WING TO SHAPE. BAKE IN OVEN FIVE MINUTES AT 350 DEGREES.



► Champion modelers of the midwest are enthusiastic about indoor "prefab" flying. Interest in it has been growing in the last eight years because it appears as a regular event on the program of the Great Lakes Indoor Air Meet held in Cleveland every winter under direction of The Cleveland Press.

A "prefab" is a sheet-wood model made from a kit. Several manufacturers make them, commonly used examples being the Carl Goldberg Ranger 21 and the Top Flite Stinson, Luscombe, etc. series.

"Souped-up" by established Cleveland standards, one of these little jobs will cruise around a medium-sized school gym for two minutes. They're ideal for indoor flying contests because a giant-size hall isn't required.

Prefabs fit nicely under a 30- 40- or 50-foot ceiling. They offer plenty of challenge. In fact, it is downright tough to complete with Detroit's Dick Kowalski, who set the new record of two minutes, 41.6 seconds last winter in the open age division using a Goldberg Ranger 21. Or Mike Karlak, Cleveland's champ, who flies a Ranger two minutes, 38 seconds on an official flight. He's in the open class too.





If Shirley McQuillan seems to question husband Dawson's winding, she's worried about prop in his mouth. Ranger deadsticks, above.

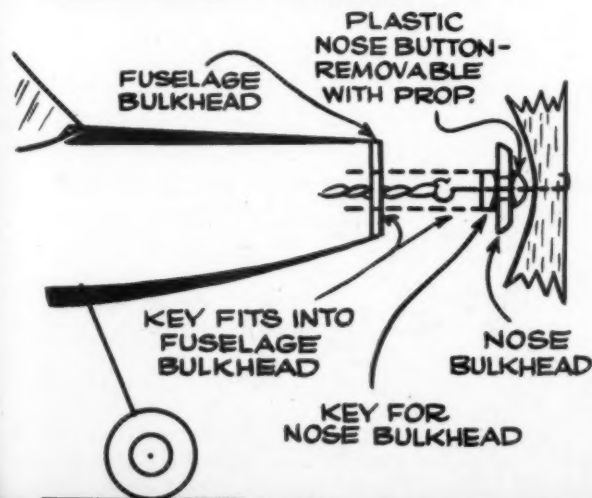
The whole idea behind prefab contest flying was to put an event on the indoor program that would appeal to kids because they might easily make kit-models for it. So what are the kids doing with prefabs today?

A little nine-year-old girl, Susan Getzlaff, Cleveland, won the prefab Dodo event with a flight of one minute, 10 seconds, using a Top Flite Luscombe! Then Ron Roharik, 11, flew his Ranger one minute, 39.4 seconds; Dan O'Malley, 12, rolled up one minute, 52.8 seconds as champion Fledgling; Ronald Roskilly, 15, scored one minute, 35.8 seconds, as Junior winner; Don Eble, 20, made a hop of two minutes, 28.2 seconds as senior ace.

But it's true—almost anybody can put together a prefab. And for the Great Lakes Indoor, everybody does. They are entered by the hundreds. In last winter's meet, every winner used a Goldberg Ranger except Miss Getzlaff. Some second and third place fliers used Goldberg Cessna's and Spirit of St. Louis. But in the meet were every kind made.

The fascination seems to be in the variety of ways to meet the prefab challenge. Rules keep it from being an all-out redesigning job in favor of the experts, as every other AMA event has now become.

## PREFAB NOSE ....



Rubber winder made by Wilson's of Cleveland, allows five to ten times as many turns. As rubber wound, winder moved toward nose.

Prefab rules give you the same box of parts and materials as the next guy. No special light indoor wood or tricky tungsten wire bracing is allowed. Some things you can change. Look at this official description of a prefab in the Great Lakes indoor rules:

**PRE-FABS:** Made from Top Flite or Goldberg kits; all sheet-wood construction. Changes in general design layout or surface areas not allowed. No paper covering. Changes in following are okay: dihedral, polyhedral or cathedral in wing or tail; propeller; rubber motor; airfoil; prop bearing; nose fitting. Ballast and decals may be omitted. Except for these changes and omissions, all other parts and materials in kit must be used. Added external bracing not permitted. Ribs to hold airfoil are allowed. No substitute materials. Sanding for lightness okay, but leave trace of decoration scheme to prove kit wood was used for all parts. Timed for duration. Best flight of six scored as entrant's record. No delayed flights. So with the rules in hand, what can you do to win?

There are three key factors: light weight, correct propeller and rubber motor of proper size.

Kowalski's plane weighed .31 ounces, Karlak's .30 ounces. Kowalski used 12 ribs on the wing, six on the stabilizer. These not only formed the airfoil but, by holding the camber, gave the wing necessary rigidity to keep it from flapping, a common fault with "strutless" Rangers. (We begged Carl Goldberg to remove the struts five years ago. He did.)

Kowalski used a hand-carved balsa propeller 8-inch diameter, 16-inch pitch. It was turned by a 25-inch loop of 1/8-inch Pirelli rubber. His dihedral was 1 1/4-inches under each tip.

Carefully sandpapering all parts of the plane before assembly brings the weight down. A razor-blade plane can make the job easier and faster.

Dan O'Malley used a model heavy by usual standards. He smoothed and lightened a regular 8-inch balsa machine-sawed propeller, then added 1/8-inch tips to it, increasing the diameter to 9 1/4-inches. His motor was 1/4 flat, brown rubber, in one loop, twice the fuselage length.

Ribs in the wing should be kept shallow. Deep or thick airfoils are unstable longitudinally. The plastic nose blocks are replaced with wood to make easier winding and storing the rubber back into the fuselage.

CONTINUED ON NEXT PAGE



Few of the trophies (ahem!) at Great Lakes Indoor Meet, Junior winners Jim Skinner, Dan O'Malley, Ron Reharik, Elmer Schroder.

## SOUPED-UP PRE-FABS . . . Continued

Wheels are cut in two, sanded and drilled full of holes to cut weight. Even windshields of plastic are sanded thin.

The big trick, however, is backing the wing to the proper airfoil. Carve wooden form to the airfoil shape. Lay sanded wing panels on it. Wet one-inch wide ribbons of Silkspan tissue and bind the wing panels to the form. Put into an oven at 350 degrees for five minutes. Remove, cool and unwind the paper. Your wing will be stiffly formed to the airfoil you want. Apply the ribs to hold it.

Carve the wooden form carefully. Use a razor-blade plane. Sandpaper it smoothly. Don't taper the form. Leave it rectangular, same width as chord of wing at root. Then you may use the same form for both wing panels. Wing, of course, is cut in two for this operation. Dihedral is added when panels are cemented to fuselage. Clay on plane's nose is used for balance rather than movable wing.

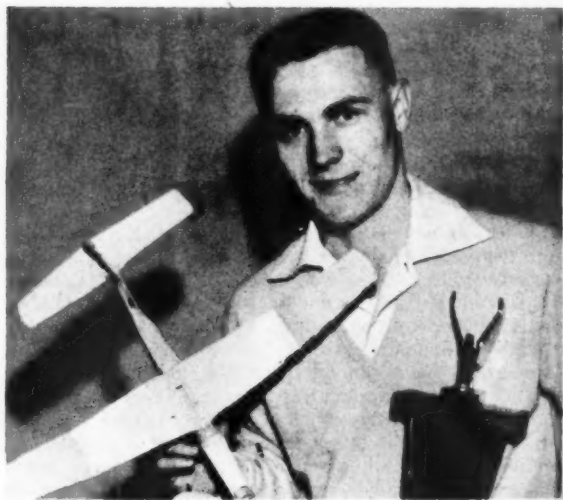
One panel of wing is done at a time. If oven is large enough, wooden form may be long enough to accommodate entire wing. Otherwise, with short wooden form, put one wing on from one end, the other wing later from the other end. *Don't make two wings for the same side.*

PREFAB NOSE is improved by enlarging the hole in the fuselage bulkhead so knotted rubber goes in easily. Plastic nose piece of Ranger can cut rubber and is too small for enlarged motors. A simple removable nose with a piece of 1/16-inch sheet wood fitted to key into the fuselage former works

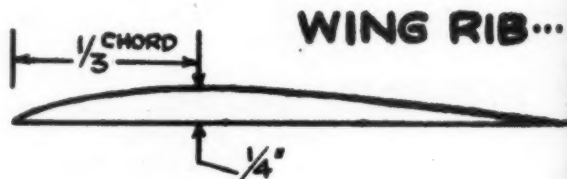
(Continued on page 40)



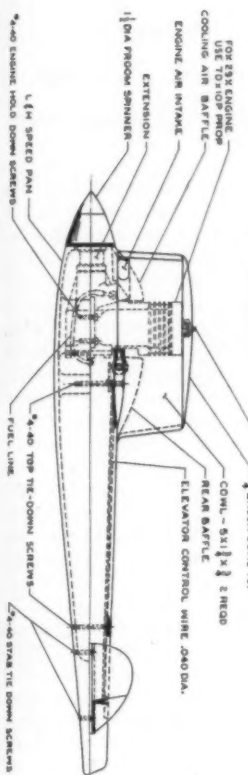
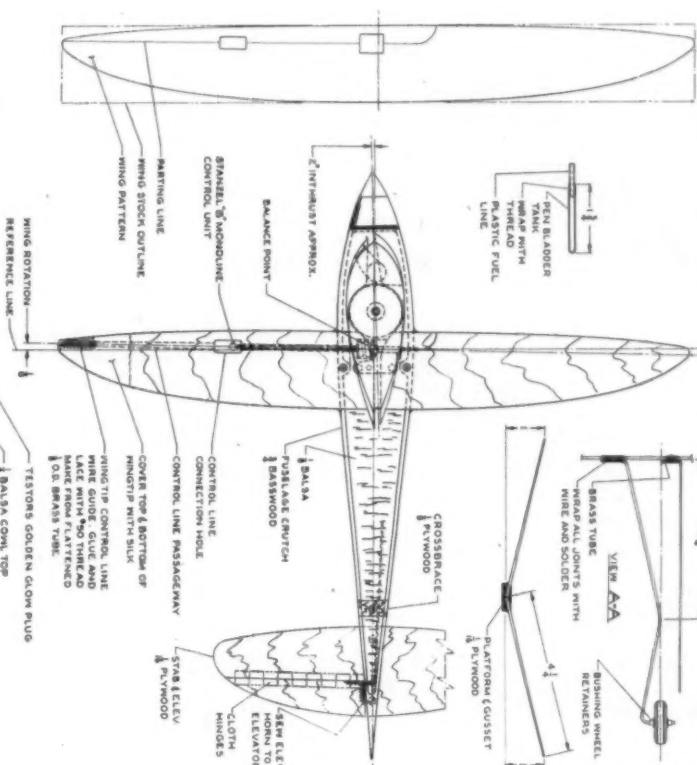
Two minutes, 41.6 secs. Open prefab set by Dick Kawalski, Detroit, in Cleveland's Public Auditorium. But the ceiling was 90 ft. high.



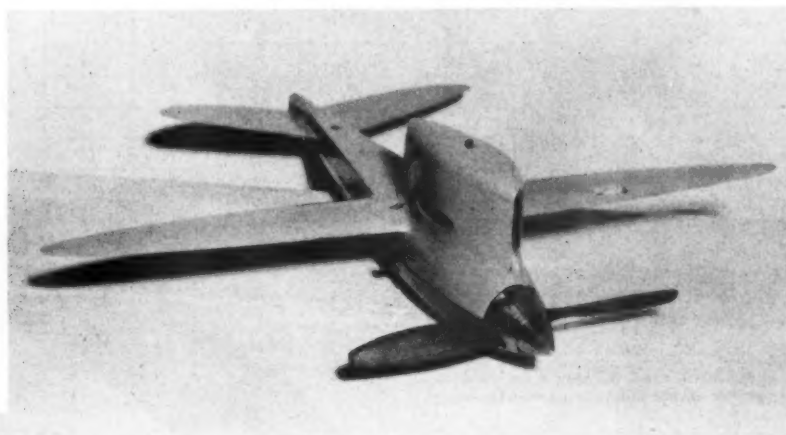
Senior Class winner, Don Elbo, 20, American Airlines employee. Plenty of keen competition in all three AMA age-class divisions.





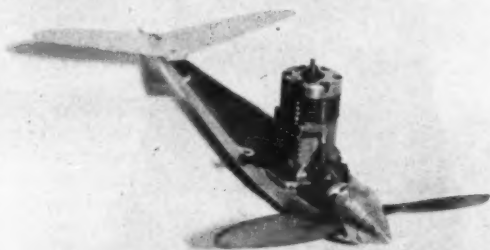


***A master flier presents a  
.29 Mono-Line speed model.  
Thoroughly contest tested.***



► The Dizzy Bee was built for the 1957 Nats in Philadelphia. No official flights were recorded because the new Fox 29X wasn't thoroughly broken in. For the 1958 Nats in Chicago, the Dizzy Bee was refinished and the engine was given more running time. The best flight turned was 149.92 mph, good enough for 6th place behind Harris and Shelton who hit 155 for a new record. Since then Dizzy Bee has won three firsts at speeds of 150 mph and is very capable of going faster under the right weather conditions.

(Continued on page 38)





## Wing Loading is Three Dimensional



Pondering his Ramred, St. Jean came up with a concept that should influence world wide design.

by RON ST. JEAN

*Scale a hot airplane to different size and the result often is a "dog." This article solves long-standing free-flight mystery.*

► For years now we have wondered why, back in the days of the minimum wing loading rule, the small models glided so poorly in comparison to larger free-flight gas models. It was explained to us that the smaller model flew at a much lower effective Reynold's Number than the larger one, and "everybody knew that you need a high R.N. for best performance!" We discovered that R.N. is merely the product of velocity, chord, and some rather illusive "air density factor." So to make a more efficient model by obtaining a higher R.N. we needed to increase the chord of the model (hence, a larger one) and increase its velocity. (We figured that finding denser air would be quite difficult.) An experiment was made in very low wing-aspect ratio, but it was a dismal failure; we then had too much "tip loss." Building a heavy model to increase velocity also didn't work. Some success was obtained, however, by building a very low drag model, and thereby increasing velocity.

With this background, we were somewhat surprised to find, in recent years, that our 1/4A's could and *did* glide as well as our C jobs. "How come," we wondered. "What happened to Reynold's Number, was it repealed? Had small engines become much hotter for their size than larger engines? Or did the fact that the old wing loading rule had been abolished have something to do with this?"

To check out the latter possibility, we computed the wing loadings of our Ramrod fleet, coming up with information in Fig. 1.

As can be seen from the tables, there is a very definite progression evident, the small models having a much lower wing loading than the large ones. And yet the glides (sinking speeds) on all these different sized Ramrods were pretty much the same.

We felt we had found the answer but certainly didn't understand it, until one day it hit us like a bolt: For years, we have been thinking of wing loading in terms of so much per square something or other but the wing is *not* a two dimensional thing, it is *three dimensional*, and loading should be figured on a volume, not area basis; it has not only chord and span, but thickness as well. To test this hypothesis, we quickly checked this out, calculating the wing loading as so much per cubic inch, rather than square inch.

To make the measure of wing volume, we first determined the actual rib area of a typical Ramrod wing section, then divided the chord into this area value, in order to arrive at a measure of average thickness. Multiplying the average thickness of a particular wing by its area, then, would produce the volume in cubic inches. As shown in the table, dividing the weight in ounces by this figure gives us our three-dimensional, or cubic wing loading in ounces per cubic inch for the various sized Ramrods. (Fig. 2.)

As can be seen from the table, our cubic wing loading is almost identical through the various sizes. And since all these models have, in addition, equivalent gliding ability, a statement of principle seems in order: In scaling a design to a different size, so as to retain the same glide, the wing volume should be made directly proportional to the weight. Or, since we are dealing only with the same design, we can make the weight proportional to the cube of the span, or the  $3/2$  power of the area (square root of area cubed). The results are the same, the important thing being to put the measure of the wing in three-dimensional terms.

It is now apparent to us that figuring wing loading as so many ounces per square foot or square inch is useful as a measure of comparison between models only when those of almost the same sizes are considered.

The real fallacy of making wing loading comparisons on an area basis is that we are co-mingling oranges and apples, so to speak. That is, weight is three dimensional and area only two dimensional. For any direct comparison, we need to express one in terms of the other so that each will be in the same dimension, whether it be one, two or three.

(Continued on page 41)

FIG. 1

MODEL	ENGINE DISP. (CU. IN.)	WEIGHT (OUNCES)	WING LOADING (OZ./SQ. FT.)
RAMROD 150	.020	3	2.88
RAMROD 250	.049	6.5	3.74
RAMROD 400	.099	13	4.68
RAMROD 432	.148	15	5.00
RAMROD 600	.225	24	5.76
RAMROD 750	.320	34	6.53

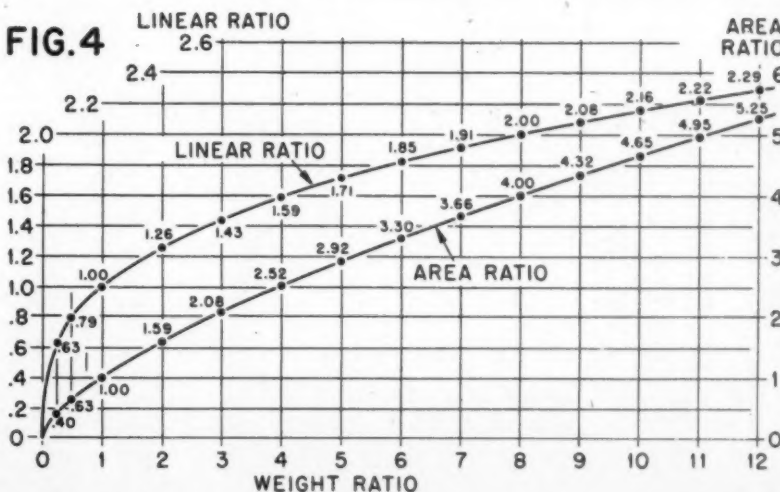
FIG. 2

MODEL	AVERAGE THICKNESS OF WING (IN.)	VOLUME OF WING (CU. IN.)	WEIGHT (OUNCES)	WING LOADING (OZ./CU. IN.)
RAMROD 150	.341	51	3	.0588
RAMROD 250	.443	111	6.5	.0586
RAMROD 400	.562	225	13	.0578
RAMROD 432	.579	250	15	.0600
RAMROD 600	.681	409	24	.0587
RAMROD 750	.766	575	34	.0591

FIG. 3

ENGINE DISP. (CU. IN.)	WEIGHT (OZ.)	WEIGHT RATIO (.049 = 1.00)	SPAN (IN FEET) CUBED	SPAN (IN FEET)	LINEAR RATIO	THEORETICAL AREA (SQ. IN.)	ACTUAL AREA (SQ. IN.)
.049	6.5	1.00	38.6	3.38	1.000	—	250
.020	3	.462	17.8	2.61	.772	149	150
.099	13	2.00	77.2	4.26	1.260	397	400
.148	15	2.31	89.2	4.47	1.323	437	432
.199	24	3.69	142.3	5.22	1.545	597	600
.320	34	5.23	202.0	5.87	1.737	753	750

FIG. 4





Starter on this ball-bearing .15 not essential, but nice to use.



Parts are typically Cox—and no coatings utilized in its design.

## ENGINE REVIEW

# Cox Olympic

► Maybe the new AMA rules are not everybody's meat: rule changes never are, anywhere, but, in reducing the class A displacement limit to .1525 cu. in., the AMA has gone a long way towards raising the world status of American contest modeling.

The reason for this is easy to see. The .1525 cubic inch (2.5 cubic centimeters) displacement is the limit that is internationally recognized for world championship model flying. For several years now, the two FAI world championship events for gas-engined models, free-flight and speed, have been restricted to 2.5 c.c., and, in Europe, individual nations have adopted FAI rules for most, if not all, of their own internal contests. As a result, engine designers have been encouraged to concentrate their ef-

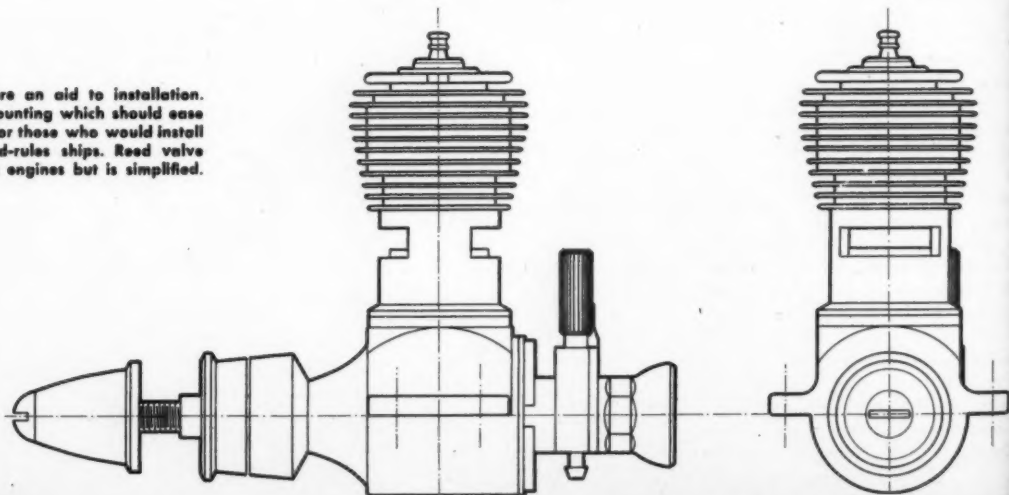
forts on the development of high performance motors of this size, whereas American designers and manufacturers have, hitherto, devoted most of their resources to an entirely different set of requirements. Small wonder that no American modeler, or American engine, has won an FAI international contest for five years.

The U.S. can produce engines capable of winning such events and there is no doubt about this in the minds of contest men all over Europe. Ever since it was first known, two or three years ago, that the Cox company had a .15 on the way, engine enthusiasts in Britain and continental Europe have awaited its appearance with bated breath. They are not going to be disappointed. There is no shadow of doubt that the new Cox Olympic .15 can better the performance of any stock 2.5 c.c. engine made in Europe at the present time. There is little doubt, either, that Western Europe will use this engine wherever its potential can be exploited: the challenge of East European state-sponsored contest engines makes this inevitable.

The Olympic follows the usual Cox layout, of reed-valve induction and reverse-flow scavenged twin-opposed port cylinder. Such notable Thermal Hopper features as the multijet carburetor and clean, hemispherical cylinder head with built-in glow filament, are retained. The main visible changes are the beam

(Continued on page 58)

Full-size drawings here an aid to installation. New feature is lug mounting which should ease conversion problems for those who would install the .15 in bigger, old-rules ships. Reed valve used as on other Cox engines but is simplified.







Conical camber shows in pic, drawings. If Miss Donna Hubbard seems to approve it's because she is an Aeronautical Engineering student at University of Minnesota. Jetex 50.



by **DON MONSON**

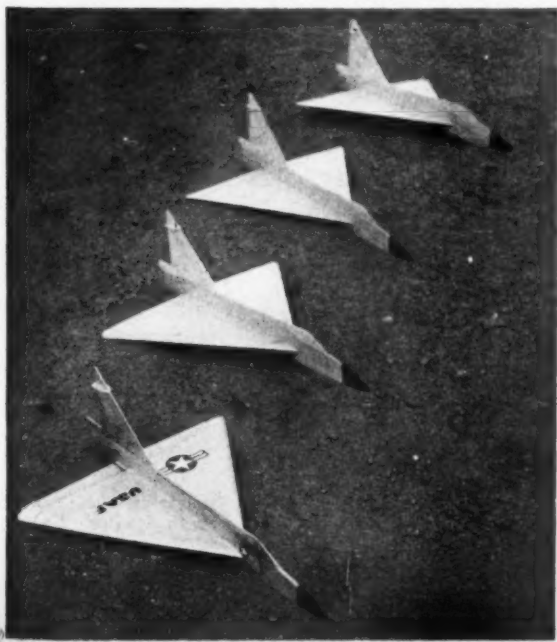
*Conical camber works on a model, too! Hand-launched glider and Jetex versions fly better. What is next?*

► When Convair engineers tested the prototype of their delta-wing F-102, they were surprised to learn that it wouldn't go supersonic even with afterburner, especially since wind-tunnel tests showed that the delta wing had less drag than the swept wing while it was passing through the sound barrier. The main cause of this effect was the excessive interference drag between the wing and fuselage.

About the same time, two new aerodynamic discoveries were divulged by NACA scientists: (1) a reduction in interference and wave drag by application of the "area rule," popularly referred to as the coke bottle design, and (2) a reduction of the induced drag, i.e., the drag due to lift, by use of "conical camber."

"Conical camber" means that the leading edge of a delta wing has a progressive downward camber increasing in radius of curvature as it passes from root chord to tip.

For quickie, make flat-wing version—two top models. Others use conical camber; leading edge curls down progressively toward tip.

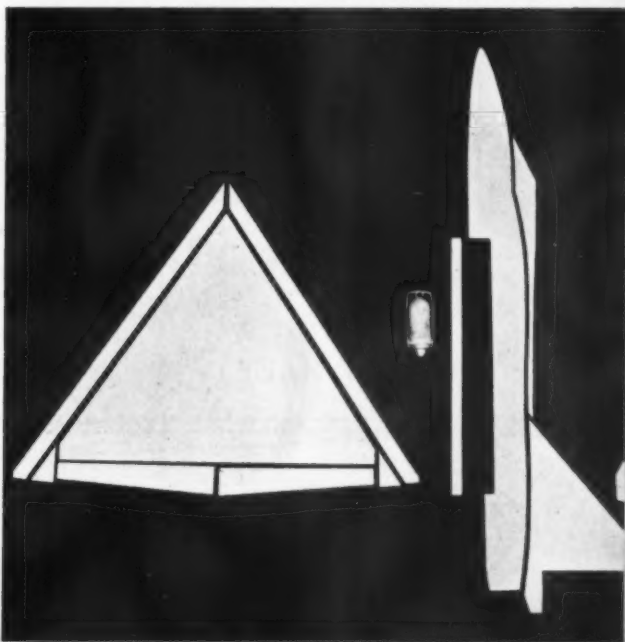


chord (Ref. 2). Theory and experiment show that both area rule and conical camber have maximum effectiveness in the transonic range, i.e., the transition between subsonic and supersonic flight, with conical camber being effective also at high lift co-efficients; and when Convair applied these modifications to their F-102, the result was the highly successful supersonic F-102A that you see flying today.

The model version of this plane originated when we began to wonder what the effect of conical camber would be on a paper glider. A few hours and several gliders later, living room tests showed a noticeable decrease in the glide angle of the glider with conical camber over the one without camber. Further glide tests in a gymnasium where more conclusive tests could be (Continued on page 46)

**FULL SIZE PLANS NEXT TWO PAGES**

The whole is equal to the sum of its parts—and the parts cinch to slice from nice, white balsa. The Jetex 50 engine clips on easily.



ALL PARTS 1/16" SHEET  
UNLESS OTHERWISE  
NOTED

ON SIMPLE VERSION, L.E.  
IS PLAIN 1/16" SHEET.

TO OBTAIN "CONICAL CAMBER," CARVE  
L.E. FROM 5/16" X 3/8" STRIP AS PER  
CROSS SECTIONS AT TOP OF FACING PAGE.  
(NOTE THAT L.E. DEPTH TAPERS FROM  
1/16" AT ROOT TO 5/16" AT WING TIPS).

## CONVAIR F-102 "DELTA DART"

— FULL SIZE PLANS —

L.E. CROSS SECTION  
AT WING ROOT

3/32" SHEET FUSELAGE

"SCOTCH TAPE" ALONG L.E.  
(FOR REINFORCEMENT) IS  
OPTIONAL

1/4" SQ. TAPERS TO 3/32" X 1/4" AT EACH  
END (SEE TOP VIEW). HARD BALSA

REAR VIEW  
(RIGHT HALF)

SIMPLE WING

"CONICAL CAMBER" TYPE

L.E. CROSS SECTION  
AT MID-POINT

L.E. CROSS SECTION AT  
TIP

BEND  
'ELEVONS'  
FOR TRIM

CEMENT ALUMINUM  
FOIL TO BOTTOM  
SURFACE HERE

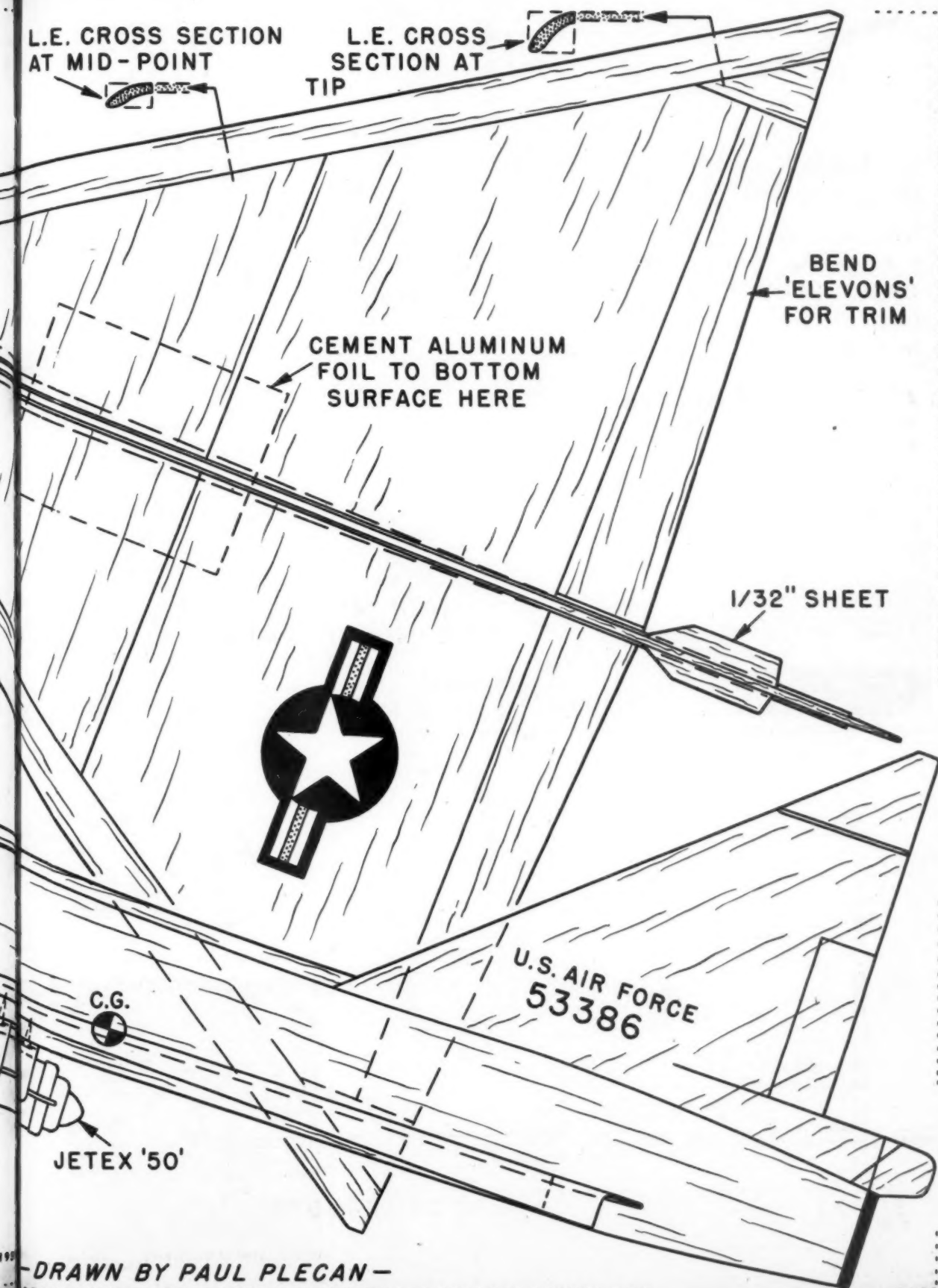
1/32" SHEET

U.S. AIR FORCE  
53386

C.G.

JETEX '50'

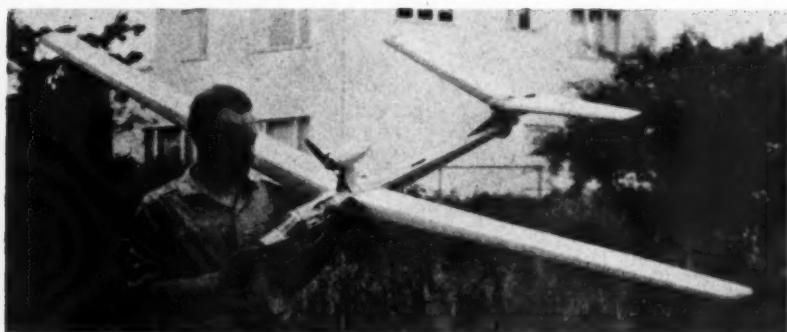
-DRAWN BY PAUL PLEGAN-



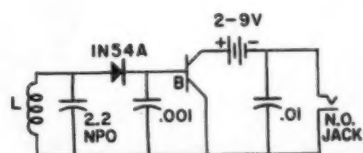
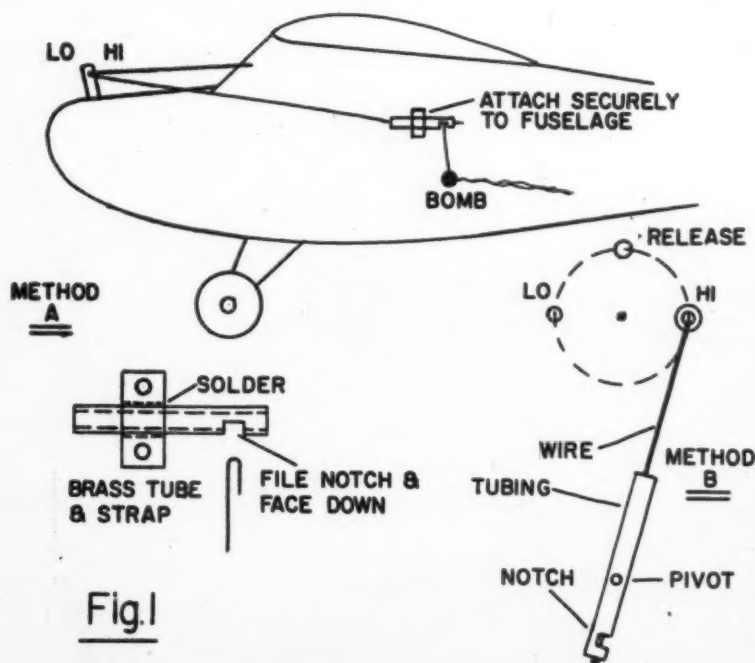




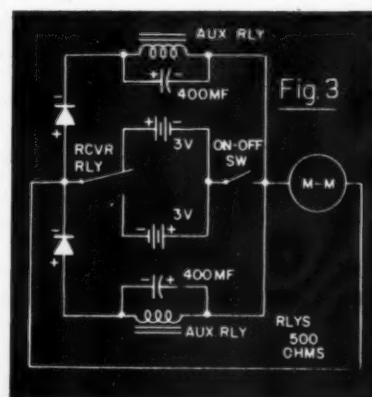
French Boy Scouts hear about RC from Sgt. James Duckworth, at Phalsburgh AFB. Standing, right tip, Smog Hog, T/Sgt. Wing, American Scout Master; his L. H. Litzenger, Director.



Powered glider, A. Friberg, Sweden, 100 inch span, transistor r/cvr converter, Telematic actuator.



TONE MONITOR  
L-NATIONAL  
N33 R, 10 UH RFC



# radio control news

by **EDWARD J. LORENZ**  
*In good old summer time,  
strange and wonderful air-  
planes take to the skies.*

## TECHNICAL TOPICS

► Now that hot weather is covering most of the country, treat batteries, transistors and wing hold down rubber bands in the right manner. Batteries should not be exposed to the hot sun for prolonged periods, referring, of course, to the regular carbon-zinc type. Transistor characteristics will change with heat, therefore keep them out of the direct hot sun. Rubber will rapidly deteriorate when exposed to heat and ultra-violet radiation. Several covers have been shown in this column in the

past  
wise  
num  
parl  
sun

F  
EBB  
drop  
at h  
prio  
tem  
side  
face  
with  
thro  
free  
trol  
it v  
from  
Add

A  
sist  
whe  
tran  
Hea  
hea  
grip  
tain  
doin  
stuff  
soak  
water  
are  
quic  
tran  
safe

F  
R. A  
dista  
12th  
mod  
pow  
5-ch  
and  
featu  
out  
dow  
The  
miles  
mph

In  
pres  
recei  
'from  
TTP  
seco  
basia  
has  
glanc  
How  
sider  
to th  
frequ  
to R  
Ther  
cies  
amou  
hets

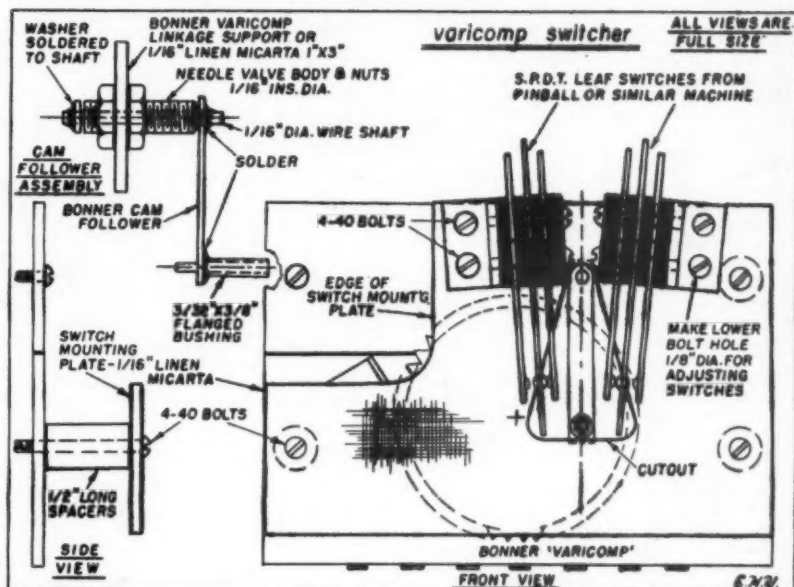
past, for protecting your plane. Otherwise cover the critical areas with aluminum foil. This is especially true when parked on the flying line in the direct sun for an hour or two.

Fig. 1 shows the method by the EBRC'ers in their Carrier, for bomb dropping. Since the run can be made at high speed, a shift to low speed just prior to the release presents no problem. The brass tubing is secured to the side of the fuselage with the notch face down. The hairpin hook is held within the notch area by the wire through the tubing. Be sure it operates freely and won't bind the motor control; Mount bomb behind gear where it won't get caught and make bomb from weights just heavy enough to fall. Add a silk streamer.

A reminder for working with transistors: don't apply too much heat when soldering them in place. Some transistors will take it, others won't. Heat may be shunted away from the header on the case by using pliers to grip the leads when soldering; maintaining about  $\frac{1}{8}$ " of lead length and doing the soldering quickly and by stuffing cotton around the leads, then soaking the cotton with alcohol or even water. Be sure the leads to be soldered are clean and then get the job done as quickly as possible. If possible, use transistor sockets and then you'll be safe.

From the Convairity, we learn that R. A. "Dick" Everett set a new world distance record for RC planes on April 12th. Spanning 6 $\frac{1}{2}$  feet, the 51" long model weighed 5 $\frac{1}{2}$  pounds empty, was powered by a Torpedo 19 and used a 5-channel receiver. Fairly conventional and boxy in design, the outstanding feature was the gear. It came straight out from the fuselage and then straight down, the tread being about 14 inches. The new distance record is now 37.1 miles and the ground speed was 47 mph.

In an early issue of MAN we will present a series of articles on superhet receivers. The first one will be of the 'front end' type, adaptable to the WAG TTPW and other tone receivers. The second section will deal with other basic circuits. This particular circuitry has been well engineered, and at first glance might be said to over done. However, we have noticed that consideration has not always been given to the fact that we have many other frequencies other than the six allotted to RC work, all in the same band. There are a total of 28 spot frequencies to consider, in addition to the usual amount of random interference. Superhets will (Continued on next page)



## Varicomp Switcher

by RALPH DeCECCO

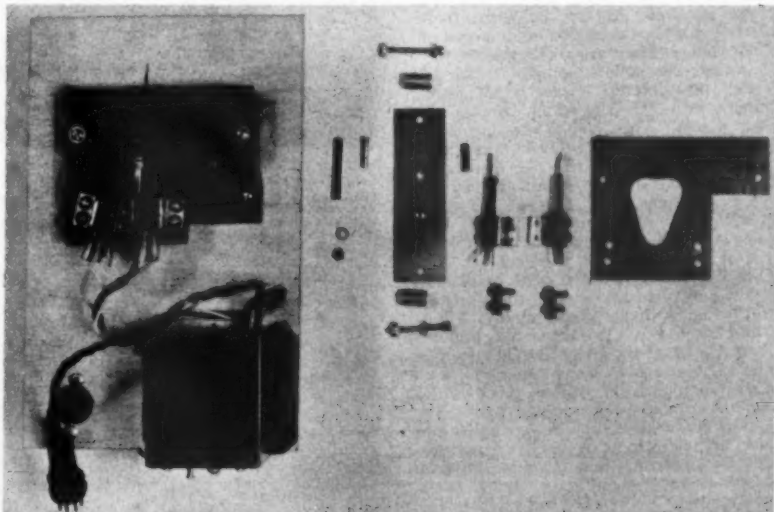
*For reliable "five-channel" operation two Varicomps, just add simple contacts, servo.*

► Since the advent of the intermediate class in R/C a more reliable elevator action has been needed, instead of the torque rod system. Because the elevator action is so unstable, many fliers have gone to the more expensive dual tones, the crank arm and more expensive pulse systems. The average modeler cannot afford these systems.

In my opinion this switcher does the trick. Most fliers have Varicomps so by cascading them, with the switcher coupled to a servo, a more reliable action is established. The cost is low, the unit easily made.

You get five channel results with one channel equipment. The unit works as usual, but a more (Continued on page 52)

Finished switcher, left, and Citizen-Ship multi servo; right, switcher parts as listed in text. Two Varicomps are cascaded as any installation.



## Radio Control News

(Continued from page 29)

not become popular until articles are published which enable the modeler to build his own equipment, even though he may pay just as much for the parts as he does for a finished set. This may be one of the reasons that 465mc has not been exploited as much as it should be. It's the ideal frequency as far as interference is concerned, but the builder has not been able to build his own equipment.

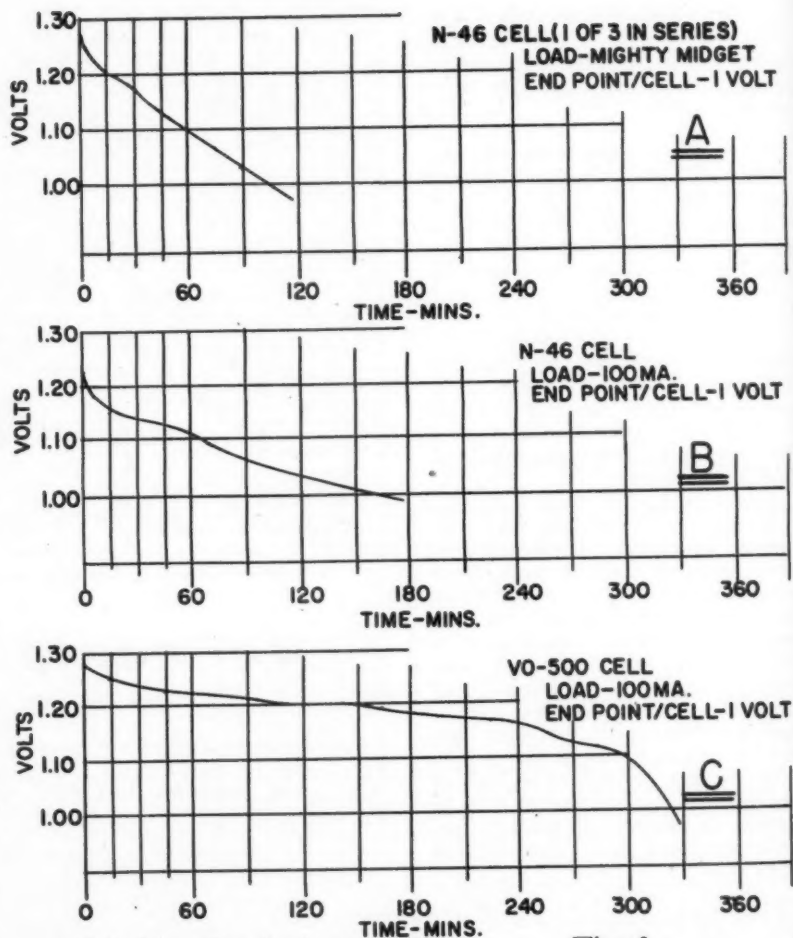
Fig. 2 comes from the Peoria RC Tattler and the circuit was designed by Hank Chesko for checking tone transmitters. No antenna is needed and the battery should last a whole season. No tuning is needed since the National choke and the capacitor provide broad tuning. No switch is needed because the battery is never connected until the headphones are placed into the normally open circuit jack.

Another item for Simpl/Simul comes from Joe Ballasch, 5309 Big Creek Parkway, Parma O. Fig. 2 shows how two auxiliary controls may be used with S/S. The relays used came from a weather balloon transmitter which you can pick up for about \$1.00 from a number of surplus stores or from ESSCO. Otherwise you can use a GEM 500 ohm relay. The 400mf capacitors (transistor electrolytics) can be obtained from Lafayette Radio.

Want to make your RC gear more rugged? Try a little fiberglass resin over and around the components, especially when mounted to a printed wiring chassis. This method is particularly effective when components are mounted in an upright position. Use about 50% more catalyst in the resin and apply with a brush or small stick. Be careful not to get into flea clips or sockets. We have found this method of conformal coating to work very well.

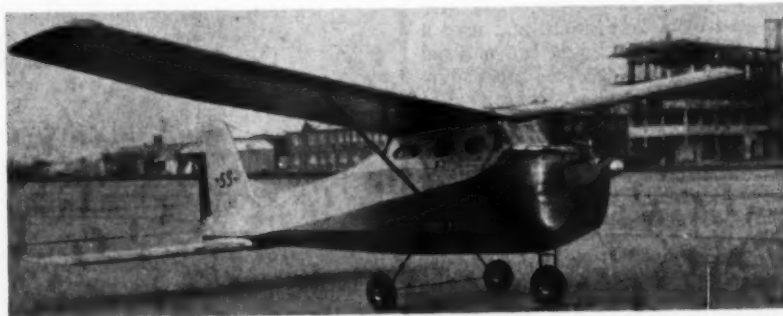
The Central Jersey Radio Control Club made tests on the new Eveready N46, size AA pencil Nickle-Cad cells. Figure 4A shows the results of this test, performed so as to simulate actual use in a pulse system. The batteries, two sets, were three of the cells connected in series and the load was a Mighty Midget plus a 10-ohm resistor. Pulsing was through regular relay points as set up for S/S, pulse rate: five per second with 50/50 duty cycle. Measurements were taken across one set of batteries and the chart also shows the voltage per cell. As can be seen, these cells will supply power for such a system for two hours. They are rechargeable.

Now let's see how these cells, which are of the non-sintered plate construction, compare with VO cells which contain sintered plates. The N46's are rated at 450mah, at a 10 hour rate, or 45ma suggested maximum drain. Fig. 4B shows the discharge curve for one Eveready N46 cell having a 100ma load applied. Fig. 4C shows the curve for one VO-500 cell, also having a 100ma load applied. The N46 is rated at 450mah at a 10 hour rate and the VO-500 is rated at 500mah at practically no rate limit. As can be seen, the N46 was good for approximately 160 minutes (Chart B) and the VO-500 for about 320 minutes (Chart C), or about twice the life for the VO-500. These tests were run with three cells of each and the average given in the charts. As stated in previous columns, the sintered plate construction is capable of much higher current drains. The non-sintered plate construction is perfectly satisfactory if used within the limits given. For example, (Continued on page 58)



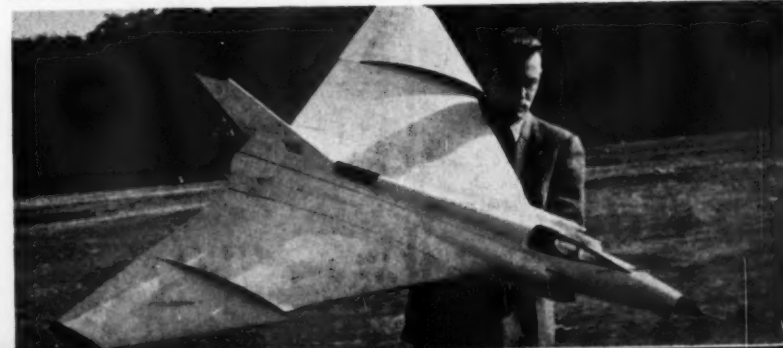
Nickle-Cadmium Cells

Fig. 4



Built for an altitude attempt, 80-in. job, Harald Kurth, Germany, 8 lbs., .60 engine, one channel.

Arvo Arrow, G. Kittner, Germany, 70-in. delta, with K & B .35 power. Weighs 7½ lbs., single channel.





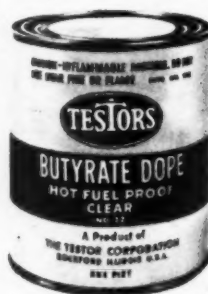


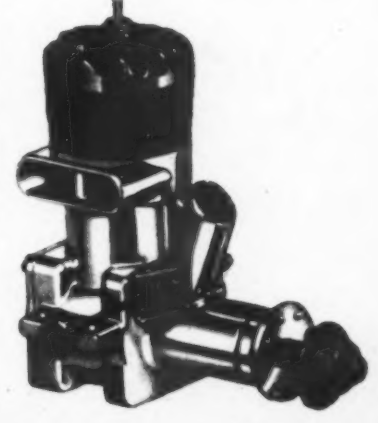
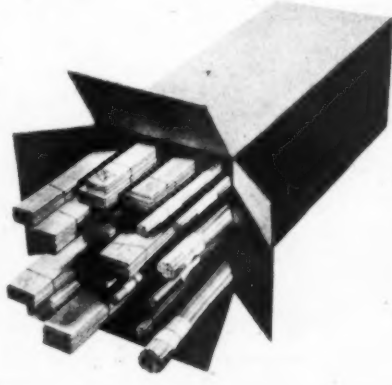
**FOR BETTER MODEL BUILDING -  
BETTER FLYING - THE ONLY NAME  
YOU NEED TO KNOW IS**



**PREFERRED BY MODELERS...EVERYWHERE!**

**THE TESTOR CORPORATION • ROCKFORD, ILLINOIS**







**TOP FLITE**

# GAS KITS TOP THEM ALL!

Three terrific planes designed by George Aldrich, America's greatest stunt champion!



**THESE 1/2-A MODELS SWITCH FROM CONTROL LINE TO FREE FLIGHT & BACK AGAIN IN A JIFFY!**

Each kit contains: formed landing gear, push rod, elevator horn, wheels, bell crank, firewall, decals, and all necessary hardware. All parts are completely finished. Only select Grade-A balsa is used. Full size detailed plans with many step-by-step construction features making it easy to build and fly.

- Ideal for beginners... and experts, too!
- All feature famous JIGTIME CONSTRUCTION for easy, no-mistake assembly!



**PIPER CUB**

27 inch wingspan. This 1/2A scale flying model is so realistic that only the star makes it a model! Instead of the real thing! Includes formed plastic cow, die cut clear plastic windshield.

Kit No. G-1  
**\$2.50**



**RASCAL 27**

27 inch wingspan. An outstanding favorite with all 1/2A model builders for years! Includes die cut clear plastic windshield.

Kit No. G-3  
**\$1.95**



**ARROWJET 24**

24 inch wingspan. Has the dash and class of modern Navy prop-jet design. Ideal for 1/2A gas engines. Includes formed clear plastic canopy.

Kit No. G-7  
**\$2.50**

Ask your dealer for a  
**FREE** Top Flite  
PROP CHART

## the NOBLER CHAMPIONSHIP CONTROL LINE



### STUNT SHIP

Kit No. N-1

**\$8.95**

Wing Area 550 sq. in.  
Wing Span 50"  
Length 38 1/2"  
Eng. Sizes .19 to .35

THE "WINNINGEST" STUNT MODEL EVER FLOWN... Won More Nationals and International Stunt Championships Than Any Other Model!

these CONTROL LINE COMBAT and STUNT TRAINERS are among America's greatest... two of the most successful planes ever designed!

Kit No. N-2

**FLITE STREAK \$3.95**

**FLASH!**

1958 NATIONALS  
WINNER of BOTH  
Senior and Junior  
COMBAT



Engine sizes .15 to .35  
Wing Span 42"  
Wing Area 390 sq. in.  
Length 28"

### BOTH OF THESE KITS CONTAIN:

- Full length shaped and notched leading and trailing edges and spars.
- Shaped fuselage.
- Select grade A balsa.
- Printed and precision die-cut balsa and plywood parts.
- Formed landing gear and push rod.
- High grade silkspan.
- Hardwood engine mounts.
- Complete detailed plans with many step-by-step construction features making it easy to build and fly.

### HERE'S WHY THEY'RE SUPERIOR MODELS:

1. Full length leading, trailing edges and spars. Require NO SPLICING, an exclusive feature for this size and type of model.
2. Assembly is easier, faster — with perfect alignment.
3. This jigtime construction of notched spars, leading and trailing edges allows you to construct a symmetrical wing on a flat surface without special jigs, also making it warp resistant.



**JR. FLITE STREAK**

Kit No. N-3

**\$2.95**

Engine Sizes .15 to .25  
Wing Span 31"  
Wing Area 230 sq. in.  
Length 22"

by the makers of famous TOP FLITES and POWER PROPS... the Props of Champs!  
AVAILABLE AT ALL LEADING HOBBY SHOPS

TOP FLITE MODELS, INC., 2635 S. Wabash Avenue, Chicago 16, Illinois

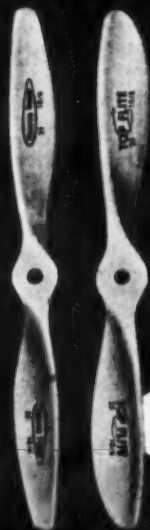
**TOP FLITE**

The CHAMPS WIN with TOP FLITE & POWER PROPS for the 11th STRAIGHT YEAR!

ALL THOSE LISTED ARE FIRST PLACE WINNERS

NEWS  
FLASH!

# Here are the WINNERS '58 NATIONALS GLENVIEW, ILLINOIS



Choose these famous TOP FLITES and POWER PROPS and YOU'LL be right up there with these Nationals winners!

**TOP FLITE**



**1/4 A SPEED SENIOR**  
Edw. Pilkington  
Hialeah, Fla.  
99.3 mph  
Engine: K & B 049  
Fuel: This Is It  
PROP: 4 1/4-7 POWER PROP  
Plane: Original

**FLYING SCALE CL OPEN**  
Tom Dean  
Corpus Christi, Tex.  
330 points  
PROP: 8-8 TOP FLITE

**1/2 A GAS FF JUNIOR**  
Bill Hunter  
Sun Valley, Calif.  
Time: 823.0  
Engine: Holland Hornet  
Fuel: Thimble Drone Racing  
PROP:  
3 1/4-4 PLASTIC TOP FLITE  
Plane: Satellite



**PAA CLIPPER CARGO OPEN**  
Lawrence Conover  
Cedar Rapids, Ia.  
Wt. Lifted: 137.25 oz.  
Engine: Thermal Hopper  
Fuel: Nitro X  
PROP:  
6-3 PLASTIC TOP FLITE  
Plane: Pelican



**JR NATIONALS HIGH POINT WINNER**  
Dennis Allford  
San Diego, Calif.  
PROPS: TOP FLITES Used in all gas events.

**A GAS FF OPEN**  
Charles E. Diller  
Riverside, Calif.  
Time: 1906.2  
Engine: Torp 19  
Fuel: K & B 100  
PROP: 8-4 TOP FLITE  
Plane: Ramrod 600

**RADIO CONTROL (MULTI)**  
Bob Denham  
Norwalk, Calif.  
213.0 points  
PROP: 11-8 TOP FLITE

**NAVY CARRIER JUNIOR**  
Alfred Gonzales  
Woodside, N. Y.  
Time: 308.02  
PROP: 10-8 TOP FLITE



**STUNT OPEN**  
Robert Randall  
Indianapolis, Ind.  
548.5 points  
Engine: Fox 35  
Fuel: Fox Super Fuel  
PROP:  
10-8 NYLON TOP FLITE  
Plane: Original

**NAVY CARRIER SENIOR**  
Robert Heminway  
Audubon Park, N. J.  
Time: 490.99  
PROP: 11-8 TOP FLITE

**FLYING SCALE CL JUNIOR**  
Jim Yeassey  
Evansville, Ind.  
244 points  
PROP: 11-4 TOP FLITE

**RADIO CONTROL FLYING SCALE**  
William F. Bertrand  
Allen Park, Mich.  
88 2/3 points  
PROP: 12-4 POWER PROP



**New 1/2 A Record R.O.W. GAS JUNIOR**  
Bert Ballantine  
N. Hollywood, Calif.  
Time: 11:31.2  
Engine: Holland Hornet  
Fuel: Thimble Drone Racing  
PROP:  
8-2 NYLON TOP FLITE  
Plane: Satellite 320

**A GAS FF SENIOR**  
Ray Le Hood  
Omaha, Nebr.  
Time: 996.0  
PROP: 8-4 POWER PROP

**PAA CLIPPER CARGO JR-SR**  
Donald A. Burnett  
Fairfax, Ia.  
Wt. Lifted: 151.25 oz.  
PROP: 6-3 NYLON TOP FLITE

**1/4 A GAS FF SENIOR**  
Dick Mathis  
Dallas, Tex.  
Time: 1153.0  
PROP: 6-3 TOP FLITE.

**R.O.W. GAS OPEN**  
Vic Cunningham  
Baldwin Park, Calif.  
Time: 824.0  
PROP: 8-4 TOP FLITE

**BC GAS FF SENIOR**  
Charles Gilliland  
Tulsa, Okla.  
Time: 1096.0  
PROP: 11-4 TOP FLITE



**R.O.W. GAS JUNIOR**  
Bill Hunter  
Sun Valley, Calif.  
Time: 737.2 (New Record)  
Engine: Torp 23  
Fuel: Ohlsson 200  
PROP: 9-4 TOP FLITE  
Plane: Satellite

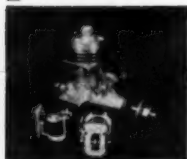
**COMBAT OPEN**  
William F. Arrowsmith  
Rochester, N. Y.  
PROP: 10-6 POWER PROP

**FLYING SCALE FF OPEN**  
Karl Spielmaker  
Grand Rapids, Mich.  
132-2/3 points  
PROP: 6-3 TOP FLITE

**NAVY CARRIER OPEN**  
Stephen Babin  
Fairview Park, Ohio  
Time: 463.0  
Engine: McCoy 60  
Fuel: Nitro X  
PROP: 10-8 POWER PROP  
Plane: Original

TOP FLITE MODELS, INC., 2635 S. Wabash Ave.—Chicago 16, Ill.

## Dealers - Write For Info On These Hot Items



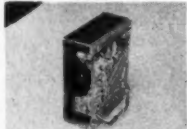
OS .09 Co. In. Glo. .... \$4.95

We would like to build thrust our chin out and state that the OS .099 has more sheer power than any other .099 glo (our opinion). OS .099 is equipped with a 2-3 v. plug for extreme easy starting for beginners. Engine will not run backwards.



S-Turn 35 Ball Bearing. \$16.95

The only production 35 available with ball bearings. The combat version shown has one large rear ball bearing, the rat race version \$17.95 also has front ball bearing. These engines are equipped with a pressure fitting on the front housing to give you timed pressure back to the tank. (Send 10c for our pressure sheet.) Will kick up storm with 13/5 for heavy Astro-Hog. Classy features incl. collet valve lock, dual inserts, pre. fitting and also plug.



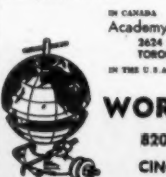
Controline SM-2 ..... \$14.95

Mr. Controline (Jack Port) tells me he is not going to continue to make these terrific 27% m.c. CW receivers (assembled) for this crazy price much longer. This receiver has an expensive hard tube (1AG4) in the detector and a good transistor in the second stage. The receiver idles low - but when you transmit the received fires and moves from 1/2 mile to about 5 miles which is a nice strong current change to pull in the relay. Wt. 1.7 oz. B-45v. A-1.5v. size 2" x 2" x 1". We recommend our own Controline HH34A assembled transmitter with 5 foot telescoping antenna. This has first rate output at reasonable battery consumption.



OS 25W Escapement ..... \$2.95

Here is a high quality escapement - again at a sensational low price. Escapement has ball bearing spindle mounting. The claw is of brass and the escapement lever is steel. Operation 2v. (self neutralizing). Pictured with the OS Per .099 are the OS relays. Note we will sell items listed n. hd. col. direct thru mails - see your dealer first.



## WORLD ENGINES

8206 BLUE ASH ROAD  
CINCINNATI 36, OHIO

### OS ENGINES

OS Model II Jet.....	\$19.95
OS ENGINES - GLO	
Max 35 Combustion.....	12.95
Max 29 New Series.....	12.95
Max 15 II.....	9.95
Max 35 R/C.....	16.95
Max 29 R/C.....	16.95
Max 15 R/C.....	13.95

### SUPERIOR GLO ENGINES

.15 LAP 88 "V" Series.....	13.95
.19 LAP 88 "V" Series.....	13.95
.29 LAP 88 "V" Series.....	16.95
.35 LAP 88 Combat.....	16.95
.40 RING 88 G-24A.....	23.50
.35 LAP Rat Reco.....	17.95

### SUPERIOR DIESEL ENGINES

G-32 .06 88 lap.....	9.95
G-31 .09 88 lap.....	12.95
G-30 .15 88 lap.....	14.95
G-30 .15 Plain Brg.....	10.95
G-30 .15 Diesel R/C.....	16.95
G-31 .09 88 R/C.....	14.95

### DAVID ANDERSON

David-Anderson 88 15.....	15.00
David-Anderson 88 15 Mod 24.95	

OTHER DIESELS - EXCLUSIVE	
Oliver MK III Mod. 15".....	32.95
Oliver MK III Std. 15".....	24.95
David-Anderson .06.....	10.95
Frog .15 88.....	14.95
Frog .09 Viscumatic.....	9.95
Frog .049 "80".....	7.95
Frog .0 MK II "8".....	9.95
Frog .21 cu. in. Diesel	

### CONTROLINE R/C

Hand Held-Assem. & Ant.* 19.95	
SM-3V No. 3 Volt Transistorized	
Tone Receiver with Relay* 29.95	
HH-1CW Transmitter - Both	
Tone and CW, Assembled and	
5' Antenna.....	34.95
Club-Pak*.....	25.95
2nd plane harness, C-Pak.....	1.95
SM-2 Receiver 45v.	
Assembled with Relay (*) 14.95	
Installation-Pak*.....	25.95
Extra lid Inst.-Pak.....	2.95
SM-1 kit*.....	8.95
Transmitter conversion kit	
for SM-1 & SM-1A*.....	4.30
METERS	
Controline O-5 MA-Moving	
Coil Jewell Bearing.....	4.95
Controline O-50.....	4.95
Controline O-10.....	4.95
Controline O-100.....	4.95

### OS R/C

ESCAPEMENTS	
OS 2-claw self neutralizing.....	2.95
OS 4-claw motor control	
for throttles.....	2.95
OS Compound.....	4.95
OS Motor Control, Valve.....	3.95
RELAYS	
OS 4000 OHM.....	3.95
OS 100 OHM.....	3.95
OS 50 OHM.....	3.95
OS 4000 OHM Polarized.....	4.95

### SILK

WORLD ENGINES SILK per yard	
(extra fine, extra thin)	
White.....	.89 [ ] Red..... 1.00
Yellow 1.00 [ ] Orange 1.00	
Green 1.00 [ ] Dk. Blue 1.00	
Lt. Blue.....	1.00

### REED BANKS

OS 40 OHM 5 Channel.....	10.95
OS 40 OHM 8 Channel.....	16.95
OS 40 OHM 10 Channel.....	16.95
Bennett Servo.....	\$13.95
W/E Diesel Fuel	
Pinet ..... \$ .90; Gal..... \$5.50	

IN CANADA  
Academy Hobby Supplies Ltd.  
224 Eglinton Avenue W.  
TORONTO, ONT., CANADA

IN THE U.S.A.:

gerous one and the model should be flown with caution. Study the flight with the power on to see if the model is flying straight with no signal; if not, the thrust should be adjusted to the left or right opposite the turn the model takes. If the model has a tendency to go left or right in the glide the rudder is adjusted for a straight glide. (Note glide turn in order to know which adjustment is first-Editor.) If the model has a tendency to stall under power and not in the glide, additional down thrust may have to be added by shimming up the motor mount at the rear. In case the model stalls in the glide it is either tail heavy (Not if the CG is where specified-Editor), otherwise positive incidence is put in the stabilizer. This is done by inserting thin balsa shim between the top trailing edge of the stabilizer and the fuselage. All thrust adjustments and incidence changes should be done gradually. With a little patience and a lot of practice you will find that Houdini lives up to its name.

## The Tri-Traveler

(Continued from page 10)

a right and left set. The wing struts are held to the bottom of the wings by means of 3-48 bolts and blind nuts. The wing struts are held to the fuselage tabs by a small cotter pin which will enable the struts to pivot at this point. Before covering your model, we suggest that you seal-off bulkheads B and C between the stringers so that the covering will not stick to them when doped.

The original model was covered with light weight Silkspan, which smooths out with four coats of thin, clear dope. All the surfaces can be covered in a normal manner except for the vertical fin and the top of the fuselage. To cover this portion of your model, we suggest that you cover one side of the vertical fin and half of the top of the fuselage with one piece of wet Silkspan. This should form a graceful fillet which is a distinguishing feature of the Champion Travelers. The cowl and wing struts are also covered; this will enable you to fill the wood grain much faster when doping. The tank is made from a lip-stick holder.

The original model is white with blue trim. Use wood filler on cowl, struts, and planked portions. If white or other light color, keep colored dope fairly thick. A very light sanding between coats with #400 wet-or-dry paper removes most of the brush marks left by thick dope. Thin the last colored coat for added smoothness.

To form the windshield, carve a mold from a block of sugar pine and sand it very smooth. Take a piece of .030 thick celluloid and heat it until it becomes pliant-be careful not to overheat it. Pull the heated celluloid over the sugar pine mold until it forms a graceful canopy. Trim off the excess material from around the edges and fit it to your model.

Add the windshield and side windows after the second coat of colored dope. Mask off the portion of the windows which do not get doped and then proceed with the finish. To add the trim color, start by masking a border stripe 1/16" wide. Apply two coats of the trim color. When this has dried thoroughly, remove the masking tape. Add the solid fill-in trim, by masking off another border 1/16" in from the original stripe. Apply two coats of the trim color and carefully remove the masking tape, leaving the base color for the pin stripe.

Your finished model should balance where shown on the plan. It should also be free of any warps. The original model was stable in both right and left power turns. However, we recommend a left-

hand power flight pattern. A slight amount of right thrust may be required along with the downthrust. Do not attempt to control the power pattern of your model by turning the rudder. The little Champion Tri-Traveler should ROG and climb at a very slight angle to the left at half-power with a 6-2 or 6-3 propeller.

## Dizzy Bee

(Continued from page 21)

will need two pieces of basswood as specified. One for the wing, the other for the crutch; two balsa wood blocks for the engine cowl; plywood for the tail; and a cast aluminum speed pan. Dizzy Bee uses the L & H speed pan from the L & H Hobby Shop, Mesquite, Tex. Finally you will need a Class B Speedmaster Monoline control unit. Although a Fox 29X is used the new Dooling 29 can be installed if desired with minor changes.

**Fuselage:** Start with the pan by filing the outside with a coarse file to remove any pits or rough edges, then use a smooth file to finish. Using #270 wet or dry, sandpaper the surface until smooth, then rub to a high finish with DuPont #7 rubbing compound.

The pan is drilled and tapped for the hold-down screws. Use a #43 drill, then tap the holes using a #4-40 tap. Be sure in locating the four engine mount screw locations that you allow for a slight left-thrust adjustment.

For the fuselage crutch select a piece of straight grain basswood or pine and, using the pan as a pattern, draw the outline and cut out with a bandsaw or coping saw. Refer to the drawing for the inside lines of the crutch. Pencil these lines onto the fuselage block and cut out this inside portion.

Carve the underside of the crutch to clear the engine shaft housing and carburetor, allowing the crutch to set against the pan.

**Wing:** Select a straight fine-grain blank of basswood or pine, remove the leading edge portion, then spot glue it back in place and allow to dry overnight. The wing planform is drawn on the wing blank or the pattern used, also the outline of the wing cutout.

Taper the underside of the wing from the root section at the fuselage joint to each wingtip. Leave the wingtips as thin as possible. Carve and sand the airfoil into the wing. Separate the leading edge portion of the wing from the larger portion by parting the cement-tacked center-line joint. Carefully cut and sand the groove in both sides.

Slip the control unit into place and adjust so the tubular stem of the control unit extends exactly centered in the grooved passageway. Drill holes through wing and fasten control unit mounting bracket with suitable machine screws and nuts. When tightening screws, make sure the control unit remains set with the tubular stem in perfect alignment with the grooved passageway. Replace the leading edge section of wing. When cementing, there is the possibility that cement may be pressed into the passageway, around the tubular stem, for instance, which, when dry, can cause drag or binding. Use only enough cement to do the job and then rotate the cam a few times to make sure the tubular stem has not become cemented in the groove.

Now drill a 1/16" dia. hole through the wing to receive the bellcrank pivot pin. Adjust the pin in the hole so the bellcrank will move freely and fix pin into place by soldering on the opposite side. The bottom

(Continued on page 38)



CARL GOLDBERG BRINGS YOU. . . .

# SPACEMAN 30

## TRAINER



30" SPAN

FOR .14 TO  
.23 ENGINES

BIGGEST VALUE TODAY

WANT TO LEARN  
TO FLY CONTROL-LINE?

**\$ 2<sup>95</sup>**

HERE'S THE RIGHT PLANE FOR YOU!

Dear Modeler: Our new Spaceman Trainer is really the plane to learn with. A beautiful, smooth flyer - yet designed RUGGED for beginner's needs. For instance, the landing gear is tough 1/8" diameter genuine music wire, held in place by an entirely new, simple shock absorbing method. And notice how the streamlined plywood doublers come back to the middle of the wing for extra strength. The controls have two positions - "gentle" to get you over those first flights, and "active" for wingovers and zooming up and down. It's designed particularly for the new Cox Thimble Drome 15 and Fox 15 engines, and has been flight-tested with the powerful K&B 23 as well. Simple to build because the structural parts are all die-cut balsa and plywood - no paper covering. In addition, the kit has all the hardware, screws, nuts, washers, wheel retainers, etc., a hard aluminum bellcrank and bushing, formed landing gear and tailgear, wheels, large attractive decal with all numbers, Spaceman figure, rudder decoration, pilot head, etc., engine bearers, nylon for hinges and reinforcing, and a fully illustrated clear step-by-step Plan, including instructions on Learning How to Fly. See your dealer now for this fine kit - a really big value at only \$2.95.



**RANGER 30** - Die-cut balsa, 30" span for .020-.049 engine. . . \$1.95.



**STUNT MAN 23** - Die-cut balsa, 23-1/2", for .049-.09 engine. . \$1.95



**SPACE JET 21** - Die-cut balsa, 21" span, for .020-.049 engine . . \$1.69



**SWORDSMAN 18** - Die-cut balsa, 18" span, for .020-.049 engine \$1.49



**1/2 A BLAZER** - Die-cut balsa, tissue, 40" span, for .049 engine. . . . . \$2.90



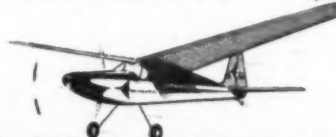
**RANGER 28** - My "pre-fab plus paper," rubber-powered, 28" span, 2 colors. . . . . \$1.00



**SHOESTRING RACER** - All die-cut balsa, rubber-powered, 18" span. Complete. . . . \$1.00



**SPIRIT OF ST. LOUIS** - A rubber-powered miniature duplicate, 21" wingspan. . . . . \$1.00



**RANGER 21** - All die-cut balsa parts, rubber-powered, 21" span beauty. . . . . \$1.00



**CESSNA 180** - Rubber-powered favorite, all balsa, 21" span. The champion of business liners \$1.00

P. S. The easiest way to get these planes, of course, is to see your dealer. If no dealer near you, or he doesn't have them, send me cost of plane plus 25¢ each for postage and packaging. Better yet, send cost of any three and I'll pay the postage!



*Carl Goldberg*



**CARL GOLDBERG MODELS INC.**

9848 S. CLAREMONT • CHICAGO 43, ILL



# BEGINNERS! EXPERTS! SPECIALISTS!

## THERE'S *Something for Everybody*

**FOR BEGINNERS!**

### FLIGHT TRAINER

Kit S-16, Wing Span 24". For .09—.15 Engines  
Designed especially for beginners in control-line flying!  
As completely prefabricated as a kit can get... a beginner  
can put it together in less than two hours! All wood, rug-  
ged enough to take plenty of punishment, extremely  
stable.

Completely carved wings and body, die-cut tail  
surfaces, finished landing gear including  
wheels, plywood parts for control system, etc.



**\$795**



**\$295**

**FOR RADIO CONTROL EXPERTS!**

### PIPER CUB J-3

Kit FS-6, Wing Span 54". For .09—.35 Engines

Especially designed for radio control, also turns in remark-  
able performance as free flight or control line model!  
Parts are beautifully die-cut and shaped, internotched for  
fast, accurate construction. Easy to fly... complete flight  
instructions included!

Fully prefabricated of balsa and plywood, with  
carved lower nose cowl, formed alumi-  
num front cowl, authentic insignia, etc.

## GEM Standard

### NEW! SILVER PALLADIUM Contacts

Here's the sensitive and reliable  
tiny mite, now with better arc suppression,  
contacts won't tarnish, corrode, or oxidize.  
Harder, wears better. More resistant to  
"welding" or "sticking" of points. Extra tie  
points for resistors or condensers. Still **\$425**

Weight Less  
than 1/2 oz.  
Size: 3/4 H.  
17/32 W.  
1-1/16 L.  
Mounting:  
One screw  
Cell: 5000 ohms

7,500 &  
10,000  
ohms at  
extra cost.  
Gem MICRO  
Deluxe  
(adjustable)  
\$4.95



JAICO Products At Your Dealer

## RELAYS

1921 W. HUBBARD  
CHICAGO 22, ILL.

## M.E.W. JET ENGINES

### M.E.W. 307 JET ENGINE

**\$14.95**

PREPAID



Powerful, 5 lb. thrust  
3 in. dia. x 2 1/2 in. long, burns  
gasoline, complete with spark plug.

### M.E.W. 601 JET ENGINE

6 in. long, easy to  
assemble, \$1.95 prepaid  
Burns gasoline. Complete, absolutely nothing else to buy.



## MINNESOTA ENGINE WORKS

5600 N. Hamline Ave., St. Paul 12, Minn.

of the cam-follower pin should have a  
slight clearance between the bottom of the  
groove in cam so that it will move freely;  
the bellcrank may be bent up slightly for  
clearance, if necessary.

The wing-tip control line bearing is  
formed of a short piece of brass tubing  
about 1/8" I.D. by 1/4" long. This tubing  
is flattened to an oval shape and secure-  
ly fixed and imbedded into the wing tip  
with cement; then sew several loops of #50  
thread around it for additional strength.

The wing now is finished, sanded and  
the trailing edge brought to a sharp edge.  
Locate and then cement the wing to the  
fuselage crutch. Make sure to rotate the  
wing as shown. This will locate the wing-  
tip control line guide about 1/8" ahead of  
the balance point when the model is com-  
pleted.

After locating, drill and tap the pan for  
the fuselage tie-down screws. These hole  
locations are transferred to the fuselage  
crutch and drilled with a #35 drill.

Attach the wing and crutch to the pan  
with flat-head #4-40 screws, then taper  
down the crutch to match the profile or side  
view. Use 3/32" medium hard balsa to  
cover the open portion of the crutch. Note  
that the cover is cemented inside, flush  
with the crutch walls.

Cowling: Use two pieces of medium-  
grade balsa. Curve the cowling as shown,  
sand the inside and apply two or three  
coats of Ditzler metal primer. After the  
cowling parts have been finished on the  
inside, locate and cement them into place.  
The top of the cowling is carved, finished  
on the inside, and cemented into place.

Tail: To construct the "V" or "but-  
terfly" tail, draw the outline on a 1/16" birch  
plywood and cut out. The leading edge is  
sanded to a round section and the trailing

edge to a sharp edge. Draw a center line,  
cut the plywood in half, and remove the  
elevator portion from the inside half. Cement  
the stabilizer halves together on the  
1/16" plywood platform and allow to dry  
overnight.

The elevator horn is made from .040 dia.  
piano wire. Bend this as shown, then sew  
it to the elevator with #50 thread. Attach  
the elevator to the stabilizer with cloth  
hinges. To insure a stronger joint at the  
"V" section of the stabilizer, a 1/16" thick  
plywood plate should be cemented in  
place. Make the necessary cutouts for the  
elevator control-horn movement. The tail  
assembly is held to the pan with #4-40 flat  
head screws. Use a #43 tap drill for the  
holes tapped in the pan and a #38 drill  
for clearance holes in the tail.

With the tail assembly attached to the  
pan, the notch is cut out of the fuselage  
to clear the tail. The rear hold-down screw  
crossbrace is located and cemented into  
place. Locate, then drill and tap the pan  
for the #4-40 rear hold-down flat head  
screw.

Finish: For a real fuel-proof finish it is  
suggested that you use Ditzler primer coat  
and a colored Ditzler auto enamel. The  
general practice is to give the model two  
or three coats of primer thinned out about  
50%, allow to dry from two to three days,  
finish sanding, and then spray with the  
enamel which should be thinned out about  
40%. Allow the finish to dry for three or  
four days before rubbing with a rubbing  
compound.

Engine: The Fox 29X engine has con-  
siderable increase in rpm when the load is  
removed as it becomes airborne. This  
means that needle valve settings are crit-  
ical. However, this can be solved by ex-  
perimenting with different sizes of inserts

15 of  
spec  
plane  
trol-li  
best

in t  
to M  
F  
asse  
der  
hau  
the  
Ren  
from  
seal  
very  
ther  
a s  
bac  
T  
othe  
be c  
of  
the  
into  
of  
star  
top  
tom  
T  
in.  
The  
be  
pin  
rub  
cov  
ing  
filin  
san  
T  
por  
the  
rais  
abo  
cen  
flus  
tak  
a v

# with Sterling Models

Belfield Ave &  
Wister St.  
Phila. 44, Pa.



34 1/4" CHRIS-CRAFT  
50' CATALINA FLYING  
BRIDGE CRUISER \$12.95  
66-PC. FITTING SET  
\$5.50

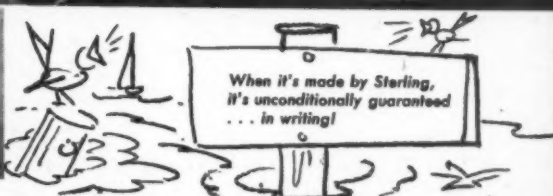
**Especially designed for radio control**



**Especially designed  
for radio control**



40" CHRIS-CRAFT  
63' MOTOR YACHT  
\$20.95  
108-PC. FITTING SET  
8.50



When it's made by Sterling,  
it's unconditionally guaranteed  
... in writing!

15 other beautiful model boat kits, many of which have been especially designed for radio control. Plus 40 other model plane kits ... for radio control ... for free-flight ... for control-line ... all waiting to make your summer modelling the best ever! Send for catalog. ▶

STERLING MODELS,  
Dept. JB,  
Belfield Ave. & Wister St.,  
Phila. 44, Pa.

Please send copy of  
Sterling Catalog. En-  
closed is 10c to cover  
handling & mailing.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

in the carburetor. A 40% reduction seems to be best.

For other modifications completely disassemble the engine and remove the cylinder liner from the crankcase. File the exhaust stack flush with the case and curve the front and back of the exhaust stack. Remove any burrs or loose pieces of metal from the inside of the case. The four-screw sealing area on the crankcase should be very lightly filed with a smooth file and then polished on a piece of ground glass or a surface plate. This will seal better the backplate.

The crankshaft requires no reworking other than advancing the timing. This can be done by grinding away the leading edge of the port opening in the crankshaft. As the grinding is being done, insert the shaft into the crankcase and check the degrees of opening. The crankshaft port should start to close the carburetor at 45° after top-dead-center and open at 10° after bottom-dead-center.

The crank-pin should have about 1/32 in. ground off the end and then polished. The bottom of the connecting rod should be filed to match the length of the crank-pin. These two things are done to prevent rubbing and grinding away of the rear cover when a starter is used. The connecting rod can be lightened considerably by filing away all the square corners, then sanding and polishing.

To retine the opening of the exhaust port, use two cylinder-liner gaskets under the flange of the cylinder liner. This will raise the bottom edge of the exhaust port above the piston when it is bottom-dead-center, so file this edge down until it is flush with the top of the piston. The intake port is left "stock," other than adding a very slight radius around the port edge

on the inside of the liner.

The underside of the head was scalloped out to add more combustion area and sharp edges were removed around the glow-plug area. The connecting rod wrist pin should have each end filed or sanded to a radius as much as possible and polished.

Before assembling the engine, be sure all the parts are clean and free from any metal filings. Use one head gasket between the cylinder head and the flange of the cylinder liner. Assemble the engine and thoroughly tighten all screws. Do not disassemble the engine again unless it becomes necessary to clean it. Be sure when mounting the engine to the pan, that the engine sets flush against the mounts, otherwise a bind will result on the shaft when the mounting screws are tightened down.

Allow for several runs before expecting peak performance. Hot or lean runs on this engine do not seem to effect its performance and it appears that at least 20 to 25 good flights are needed to bring the engine up to peak operation.

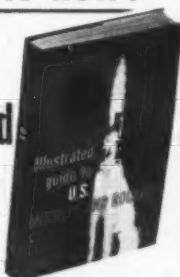
Before test flying check the controls for binding or rubbing. The controls should operate freely for good take-offs and landings.

Check out the control system to see that you have at least 10° up movement and 10° down movement of the elevator. Be sure there is no rubbing of the elevator push rod or that the control unit bellcrank doesn't rub against the tank.

Use a 7" dia. 10" pitch Tornado propeller cut down to 6 1/2" dia. with a little more pitch sanded into each blade. For maximum performance in record attempts, use "This is it" or Franny's Hi Nitro contest fuels. Dizzy Bee is very stable and easy to fly. Don't be surprised if you find yourself breaking the class "B" record.

## Available now!

The first  
complete  
Illustrated  
Guide  
to U.S.



## Missiles and Rockets

by Stanley Ulanoff

— This invaluable guide for all missile-model enthusiasts features action photos, scale silhouettes, specification and data tables (manufacturers, types, dimensions, guidance system and power plant diagrams, performance, armament, etc.) and full descriptive text on 65 basic missiles, rockets, manned research aircraft and space vehicles. Written by a professional missile model designer, this expert, authoritative book is the only volume of its kind — a magnificently illustrated album that no model builder can afford to be without.

\$3.95 at all booksellers **DOUBLEDAY**

# NOW- a complete selection of HAWK KITS for 98c

 <p><b>CORPORAL MISSILE</b> No. 508 ..... 98c</p>	 <p><b>F-84G THUNDERJET</b> No. 505 ..... 98c</p>	 <p><b>BANSHEE</b> No. 501 ..... 98c</p>	 <p><b>CONTINENTAL VISCOUNT</b> No. 506 .. 98c</p>
 <p><b>VANGUARD SATELLITE</b> No. 515 ... 98c</p>	 <p><b>F-104 STARFIGHTER</b> No. 504 ..... 98c</p>	 <p><b>U.S. NAVY TV2</b> No. 512 ..... 98c</p>	 <p><b>ATLAS SPACE STATION</b> No. 513 ..... 98c</p>
 <p><b>LOCKHEED T33</b> No. 509 ..... 98c</p>	 <p><b>ATOMIC AIRPLANE</b> No. 514 ..... 98c</p>	 <p><b>B.O.A.C. COMET IV</b> No. 507 .. 98c</p>	 <p><b>CAPITAL VISCOUNT</b> No. 503 ..... 98c</p>

**h a w k** Send 10c for full color catalog on other fine HAWK MODELS  
**MODEL CO., 4600 North Olcott Ave. Chicago 31, Illinois**

ANOTHER FAMOUS R/C UNIT BY

## Babcock



**"MARK II" SUPER-COMPOUND ESCAPEMENT SERVO**

World's largest selling escapement for full rudder and elevator control plus motor control switch. Taps in reliability. Easy to install and operate. Handles any size plane. Complete with actuating arms and linkage. Rust and corrosion proof. Rubber-powered. Low current drain; 8 ohm coil, 2 to 3 volts.

No. 886 COMPLETE ... \$7.95

By the makers of the world-famous BABCOCK R/C SYSTEMS

Transmitters • Receivers  
Escapements • Models

See Your Babcock Dealer ... or write for complete Catalog.

**Babcock** **MODELS INC.**  
COSTA MESA, CALIF.

### Souped-Up Pre-Fabs

(Continued from page 20)

fine. Make it from tough 1/16" sheet or plywood since the plane needs weight in the nose anyway.

The plastic nose-button or prop bearing should be used. Drill the nose block to take it snugly. Have several buttons all the same size if you want to try different props. Put them on the prop shafts, bend the shafts to hold the rubber. Then to switch props, all you do is pull out nose button from nose bulkhead after rubber is unhooked. No shaft-bending at the contest.

For winding, pull entire nose block out front, unhook rubber and place on winder hood. When wound, hold rubber one inch from end, let winder unwind, and put resulting loop of rubber back on prop shaft. But don't have lubricant on your fingers.

**PROPELLERS** of all types have been tried. One theory is that fast turning props of smaller area give less torque reaction. Norman Getzlaff uses this theory with some novel ideas of his own. He puts "scallop" in the trailing edge. They let the prop turn faster, he says.

Getzlaff's block is illustrated here. He found that old props worked better. Floor landings had knocked off the leading edge tip corner. Then he cut off the leading-edge tip corner of new ones and obtained the same results. So the design is followed.

He prefers to plane off both rear and front faces of the prop blank and keep the blade angle in the center. He cuts the block by exacting methods using arcs.

Standard hand-carved props give good results. But Mike Karlak simply cuts two blades from sheet wood, joins them at right angles or at 45 degrees to the shaft, and gets nearly three minutes.

**RUBBER POWER** for prefabs ranges from two loops of 3/4-inch flat to two loops

of 1/16-inch square Pirelli. Some braid their strands. Everybody uses plenty of slack—about twice the fuselage length. Remember that you can get more power from a shorter motor, only it won't last as long. Or you can reduce the power of a given motor by making the loop longer.

The main objective is to have the model land with some winds left in the motor. If it runs out at high altitude, the motor is too strong. If too much power remains after landing, rubber not strong enough.

Maximum turns—3" flat brown rubber; 2 strands, various lengths; 115 turns per inch (21-1 winder)

Rubber Loop Length	Total Winds
10"	1150
15"	1725
16"	1840
17"	1955
18"	2070
19"	2185
20"	2300
21"	2415
25"	2875

These figures are for well-lubricated, fresh rubber of the best grade in peak condition. If your rubber is less than that, don't expect to get maximum turns. Reduce to 100 turns per inch for safety.

Four strands of 3/4"-flat brown 15" loop ..... 1200  
 20" loop ..... 1600

Maximum turns—3/32-inch flat, two strands (one loop), 130 turns per inch; Four strands (two loops), 94 turns per inch. (Reduce to 90 to allow for poor grade of rubber.)

14" loop	— 1260 turns
15" "	— 1350 "
16" "	— 1440 "
17" "	— 1530 "
18" "	— 1620 "



## Wing Loading Is Three Dimensional

(Continued from page 23)

To clarify this, let's taken an example, which may be more familiar to us all: The relationship between the side of a cube, the area of any one side, the cube's volume, and weight. Consider a cube two inches on a side which has a weight of eight ounces. If a side is two inches, the area of a side will be the square of two, or four square inches; the volume will be the cube of two, or eight cubic inches. In describing this cube, we might say that it has a "loading" of two ounces per square inch (8 ozs./4 sq. in.). But if we used this relationship to predict what the area need be to have a cube of the same material to weigh 64 ounces, our answer is obviously incorrect.

Our erroneous reasoning might go something like this: The large cube is to weigh eight times as much as the small one (64 ozs./8 ozs. is 8). The large cube will have the same "loading" as the small one, two ounces per square inch (here's where we get into trouble). To find the area needed to "support" 64 ounces at two inches per square inch, we merely divide the 64 by two to arrive at our new area of 32 square inches. Taking the square root of 32, produces the value for one side, or 5.66 inches, the volume being about 181 cubic inches.

In correctly reasoning the above problem, and arriving at a cube size to weigh 64 ounces, our thinking should run like this: Since the volume will be directly proportional to the weight (both are three dimensional), and the 64 ounce cube will be eight times as heavy as the eight-ounce one, it will also have eight times the volume, or 64 cubic inches. Taking the cube root of this will give us the value for a side of four inches (4 x 4 x 4 is 64).

In our incorrect solution to this problem, we "mixed apples and oranges" by directly comparing a two-dimensional to a three-dimensional thing. Let's assume, however, that the volume was difficult to measure, whereas measuring the area was relatively simple. How can we compare area to weight? Merely by expressing the area in three-dimensional terms. We can do this by taking the square root of the area, thus reducing it to one dimensional terms, and then cubing this figure. We can express this two ways:  $\sqrt{\text{area}}^2$  or  $\text{area}^{\frac{2}{3}}$ .

In the problem above, our solution, using this method, would work this way: The weight will be directly proportional to the area  $\frac{2}{3}$  values, which, for the two-inch cube will be  $\sqrt[3]{4}^2$ , or 8. Since the large cube will have a weight eight times that for the smaller cube, its area  $\frac{2}{3}$  value will also be eight times that of the smaller cube, or 64. To then put the 64 back in two-dimensional terms, it is necessary to apply the  $\frac{2}{3}$  power to it in order to cancel the exponents:  $\sqrt[3]{64}^2$  is 4. Four squared is 16, the area of the 64 ounce cube. This may seem like the long way around, but it did enable us to compare the weight and areas of the two cubes, without resorting to actual computations of volume. Utilizing an 8" circular slide rule, this type of comparison is quite fast.

Since a direct scale-up was involved in the cubes, we could have compared a side (one dimensional) to the weight, by first putting the side in three-dimensional terms by cubing, and thus arrived at the same result.

"All right," you say, "So what?" Are you planning on building an FAI

(Continued on page 44)

## SEND ONLY \$2.95

FOR THIS \$11.95 BOOK

(remaining \$9.00 to be paid \$3.00 per month)



## "AIRCRAFT OF THE 1914-18 WAR"

by Thetford - Riding - Russell

ONLY BOOK  
THAT COVERS  
ALL PLANES FLOWN  
IN WORLD WAR ONE

DELUXE BOUND

### CONTENTS

Only book that contains not only all the Aircraft flown in World War One, but also hundreds of photos and drawings of rare and experimental type so hard to find. Book is cloth bound, 234 large 11 x 8 3/4" pages. 80 full page 1/2" scale plans shown of planes from USA, England, France, Germany, Italy, etc. Full page photos of Squadron line ups, plus half page and third page photos of each plane, in all over 200 photos. Full Dimensions, Weight, Armament, Performance, Power Plant, and constructional details are given for each plane, plus its Operational History. This book is of great interest to any who have flown these old planes, to any who are interested in the building of true scale Museum type models, and to those who simply like to see top notch photos and write ups about these, now rare, aircraft. This book is a collector's item. Book weighs almost 2 pounds. It is sold on a money back guarantee, after you have paid for the book in full, if not satisfied with it we will grant a full money back refund within 10 days after you have received it.

SAMPLE PAGES and Circular about the book above .....25c ☐

CHECK OFF THE FORM BELOW and PRINT your name and address in column this ad add 25c postage

Please send me the 14-18 book above, I enclose full \$11.95 ☐ per book,

Please place me on order for the 14-18 book above, I enclose only \$2.95.....☐

I agree to pay the remaining \$9.00 in three monthly payments of \$3.00 each

Also available "PLANSBOOK" contains over 1000 different plans, including hundreds of 14-18 Aircraft "PLANSBOOK" comes with \$1.00 Credit Voucher which can be used on future purchases..... "PLANSBOOK" \$1.00 ☐

"AEROMODELLER" magazine contains scale plans. Year sub. \$4.50. Sample 25c ☐

Gull Model Airplane Co. 10 E. Overlea Ave., Dept. M2 Baltimore 6, Md.

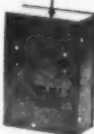
## NEW MC TONE R/C EQUIPMENT

FACTORY BUILT • TUNED • TESTED  
READY TO OPERATE • FULLY GUARANTEED



RECEIVER... MC Model 100 T

- Absolutely reliable
- 6007 detector plus 2 transistors
- Printed circuit • epoxy glass board
- Weight only 1 1/2 ounces



TRANSMITTER... MC Model 250 T

- Stable, reliable circuit
- Standard 1,000 cps tone
- Frequency choice • 27.255 or 26.995
- 54" aluminum antenna • steel case

### SPECIAL COMBO OFFER

ONLY \$39.95 POSTPAID (less batteries)

ORDER YOUR COMBO 'T' TODAY

Write for free literature on the complete MC line.

Dealer inquiries invited

JAYHAWK

MODELS  
2120 (E) TENNESSEE  
LAWRENCE, KANSAS



# NEW



CESSNA 172

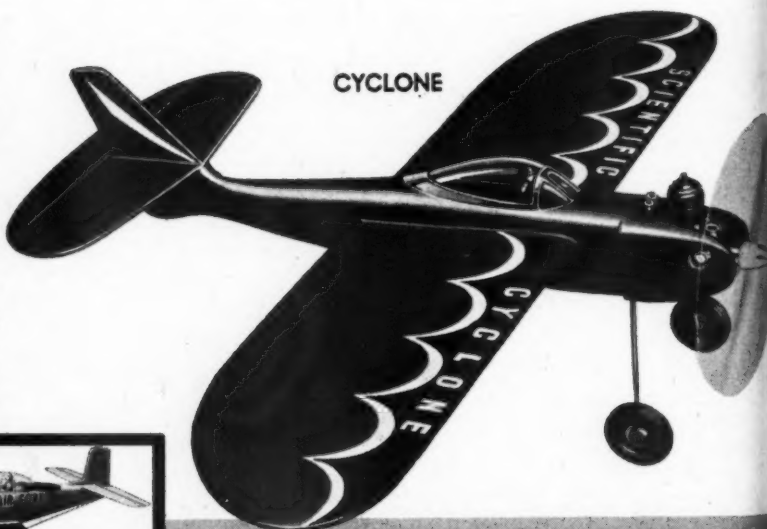
**\$2.95**  
each

## SCIENTIFIC MODELS

### FOR KING-SIZE FUN!

**CESSNA 172** .....\$2.95 Here's the newest Cessna private plane that you can fly yourself . . . by U-Control, of course, using just about any 1/2 A gas engine (up to an .074). Performance-wise you'll find this model just about the snappiest you can fly—regardless of price. And—note the trim, slim, undisturbed lines of this scale beauty. Wingspan is a full 21 inches. The kit is all prefabricated . . . with a pre-carved balsa fuselage and all parts already cut, formed or shaped for you.

**CYCLONE** .....\$2.95 U-Control fans . . . get ready to fly up a storm! You're looking at our brand new "CYCLONE" . . . 7 ounces (with the engine, that is) of sheer flying dynamite. The enormous wing area of this model (21" span) provides tremendous "lift" that lets you take off realistically . . . fly every stunt in the books . . . then land as softly as a feather. You can power your very own Cyclone with any small bore gas engine .035 to .099. And—assembly of the model is a cinch from the all prefabricated kit (with our pre-carved balsa fuselage, too).



CYCLONE



CURTISS HELLDIVER



BEECHCRAFT  
T-34 MENTOR



COMBAT MASTER



THUNDERBIRD



ARMY RACER



PIPER CUB RESCUE

## ← MORE NEW RELEASES

See your favorite hobby dealer for these popular U-Control flyers . . . by SCIENTIFIC, catch! We call 'em our "super 6" . . . because they're super in every detail. Look! Performance! Ease of Assembly! Quality Features! The Works! And the price is a tiny \$2.50 each. Each kit comes super prefabricated with our exclusive pre-carved balsa fuselage and all parts formed or shaped for easy assembly. Most models have 18" wingspans. They power with gas engines .030 to .074.

**\$2.50**  
each

**AT YOUR DEALER**  
... be specific, say

**SCIENTIFIC**

If no dealer is available, add \$10 (postage & packing) to cost of Model  
**SCIENTIFIC MODEL AIRPLANE COMPANY**  
113 MB MONROE ST. • NEWARK 5, N. J.



**KINGPIN \$1.49**  
SPAN: 14" For .020 to .049 Eng.  
Brand new profile stunt model  
with a big 60 cc. inch wing.  
U-Control flyer. All prefabricated.



**AIRCOUPE \$2.50**  
SPAN: 18" For .020 to .074 Eng.  
A real "beaut" of a model. It's  
authentic scale . . . for U-Control  
flying. Prefabbed. Carved fuselage.



**Messerschmitt \$1.95**  
SPAN: 18" For .020 to .074 Eng.  
U-Control scale flyer of the Me.  
109. "Desert Fighter". Prefab  
model with carved fuselage, etc.



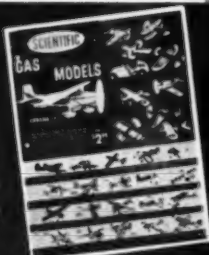
**Gee Bee Sportster \$1.95**  
SPAN: 18" For .020 to .074 Eng.  
Brand new U-Control scale model.  
An excellent performer. Kit is all  
prefabricated. Carved fuselage.



**Half Pint Racer \$2.95**  
LENGTH: 9" For "1/4A" Gas Eng.  
New, improved model. Speeds over  
40 m.p.h. Direct wheel drive. Prefabbed  
formed body, rubber wheels.

## SEND FOR OUR FREE CATALOG

It's brand new! Just off the  
press. See your dealer or send  
a postal card for your free copy.  
Features all our exciting gas  
powered models . . . airplanes,  
boats and race cars. A must for  
every modeler.



# GAS POWERED SCIENTIFIC MODELS

Greatest Values! Top Performers! Best Looking, Too!



**Stuka Dive Bomber \$2.50**  
SPAN: 18" For .020 to .074 Eng.  
Something new! This U-Control  
thriller drops bomb as you fly.  
Prefabbed with carved fuselage.



**Stits "PLAYBOY" \$1.95**  
SPAN: 18" For .020 to .074 Eng.  
One of our hottest looking and  
performing U-Control planes. Styled  
from Goodyear Racer. Prefabbed.



**No. Am. "Texan" \$2.50**  
SPAN: 18" For .020 to .074 Eng.  
Authentic scale model of the USAF  
AT-6 Trainer. A top-notch "fly it  
yourself" model. All prefabricated.



**P-40 Flying Tiger \$2.50**  
SPAN: 18" For .039 to .074 Eng.  
Our popular U-Control model of  
this Curtiss World War II fighter.  
Prefabbed w/carved fuselage.



**GOLDEN HAWK \$2.50**  
SPAN: 18" For .020 to .074 Eng.  
Big expansive wing . . . extremely  
colorful model for U-Control fly-  
ing. Carved fuselage, prefabricated.



**Torpedo Speedboat \$2.95**  
For Gas Powered OUTBOARD Eng.  
Length 20", Beam 8"  
Bamie mahogany veneer hull. A  
real speedster. All prefabricated.



**"ELDORADO" \$1.69**  
14 1/2" Long. For Elec. Outb'd. Mtrs.  
Fast, sleek speedboat — really  
modern w/wrap-around windshield  
& swept wing fins. Prefab.



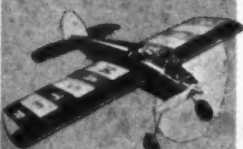
**Buckeye Jr. Cabin \$3.95**  
For "1/2A" Eng., Electric Motor  
World's our sleek cabin cruiser. Has  
a removable halsa cabin, 14"  
carved halsa hull — 100% complete.



**F4U-5N "Corsair" \$1.50**  
SPAN: 18" For .020 to .074 Eng.  
Profile fly-it-yourself model of this  
famous WW II fighter. It's U-  
Control, flies like a dream. Prefab.



**STUNT MASTER \$1.95**  
SPAN: 18" For .020 to .039 Eng.  
Very popular 1/4A stunt plane.  
Highly colorful . . . terrific action.  
Super prefabricated kit.



**Super Stunt Master \$2.95**  
SPAN: 20" For .049 to .099 Eng.  
It's big! Terrifically colorful, too.  
Unique U-Control stunt model.  
Carved fuselage, etc.



**ZIG-ZAG \$1.69**  
SPAN: 18" For .020 to .074 Eng.  
Fast! Colorful! Here's a real hot  
U-Control model with real get up  
and go! Prefab. Carved fuselage.



**Piper Cub Cruiser \$1.95**  
SPAN: 18" For .035 to .074 Eng.  
All prefabricated, carved halsa fuselage  
model. It's scaled after the  
famous "Cub" private plane.



**LITTLE STINKER \$2.95**  
SPAN: 16" For .020 to .074 Eng.  
"Pitt's Special" championship stunt  
flyer. Highly colorful model. All  
prefabricated kit.



**RYAN TRAINER \$2.50**  
SPAN: 18" For .020 to .074 Eng.  
Famous Ryan trainer that you fly  
U-Control. Prefabbed kit has a  
carved fuselage, etc.



**B-Z TRAINER \$1.29**  
SPAN: 18" For .039 to .074 Eng.  
Big value deluxe profile trainer  
with "jet fighter" styling for U-  
Control. Prefab w/balsa canopy.



**LITTLE MUSTANG \$1.95**  
SPAN: 18" For .020 to .074 Eng.  
Famous escort fighter model. Com-  
pletely prefabricated. Features carved  
halsa fuselage, formed halsa wing.



**Cessna 182 Tricycle \$1.95**  
SPAN: 18" For .039 to .074 Eng.  
Scale fly-it-yourself model of  
famous private plane. All profile  
w/carved fuselage.



**T-28 TRAINER \$1.50**  
SPAN: 18" For .035 to .074 Eng.  
North American's U.S.A.F. standard  
training plane. Now you fly it U-  
Control. All prefab., profile model.



**Piper Tri-Pacer \$1.95**  
SPAN: 18" For .039 to .074 Eng.  
Scale U-Control flyer with a tri-  
cycle landing gear for safe land-  
ings. Prefab, carved fuselage.

**AT YOUR DEALER  
... be specific say**

**SCIENTIFIC**

**SCIENTIFIC MODEL AIRPLANE COMPANY**  
113 M8 MONROE ST., NEWARK 5, N. J.

If no dealer is available, add 25% postage & packing to cost of order.

# more AIR POWER with **TORNADO** **NYLON** **PROPELLERS**

Yes, undisputed King of model air power these days is **NYLON**! No finer material for max. thrust delivery from engine-plus-propeller! Beats wood in **FLEXIBILITY** and durable resilience. **HOLDS SHAPE** and thrust at top RPM's. Practically **UNBREAKABLE**... survives even ground loops and belly landings! **TEMPERATURE-PROOF** — doesn't "brittle" at sub zero — nor soften in tropic heat. **FUEL PROOF** — no corrosion from today's standard or special fuels. **SMART COLORS, TOO!** A one-trip dip in any boiling type Nylon dye provides brilliant, beautiful color finish... and it's permanent!

Because **NYLON** protects and maintains the superb thrust power of GRISH-Engineered propeller contours at all speeds... it's the **BEST** for longer, care-free flying! Ask for Grish **TORNADO** Propellers in most sizes of 3 blades, 2 blades, both tractor and pusher.

**GRISH**  
**BROTHERS**

St. John 1,  
Indiana

2 Blade Tractor	
5-3 5-4 5 1/2-3	
5 1/2-4 6-3 6-4	25¢
7-4 7-6	40¢
8-4 8-6 8-8	60¢
9-4 9-6 9-7 9-8	
10-4 10-6	85¢
11-4 11-6	\$1
RC 12-4	
12-5 12-6	\$1.50
2 Blade Pusher	
5 1/2-3 5 1/2-4	
6-3 6-4	25¢
8-6	85¢
9-6 10-6	\$1
3 Blade Tractor	
5-3 5-4 6-3 6-4	50¢
3 Blade Pusher	
6-3	50¢



MAXIMUM THRUST from

ENGINE TORQUE

## **NEW!** ACE KRAFT TONE RECEIVER PARTS

Due to popular demand, Ace has made individual parts for this unit available. Buy them separately or in a combo-parts package.

PC Base reworked to hold the CR60 transformer, undrilled.....	\$ 1.75
5 mf IEL electrolytic.....	.75
20 uh RFC.....	.45
CR60.....	1.63
CK722.....	.99
6007.....	1.95
Wound coil 27 1/4 mc.....	.85
PB #1.....	.10
Complete combo parts package.....	19.95

Write for Catalog No. 59AD

**ACE RADIO CONTROL**

BOX 301  
HIGGINSVILLE, MO.

job for that hot new Torp .09? Don't! Building anything other than the maximum allowed (2.5cc) would put you at a severe disadvantage, since FAI rules call out a minimum surface loading based on square measure; and as you can now see, the smaller model is doomed under such a rule, since its true loading (volumetric) would be much higher than that of the maximum-sized model.

Perhaps next time we vote on FAI rules, we should all push towards the elimination of the surface loading rule, or at least try to get them to measure it on a cubic basis. We feel that the best way of doing this would be to work with the 3/2 power of the area, as mentioned above.

Should the FAI rulemakers be unsympathetic towards eliminating the minimum surface loading requirement completely, we would specifically recommend a minimum loading of 3 gm/sq. dm  $\frac{1}{2}$ .

In practice, the minimum weight could be figured this way: For a model of 40 sq. dm surface, (819 sq. in.) the area  $\frac{1}{2}$

value would be 253. Multiplying this by 3 gm gives a minimum weight of 759 gm, or 26.7 ozs. (To simplify this calculation, a curve could be prepared for the use of contest directors to read weight against area directly.) Similarly the minimum weight for a model of 19 sq. dm surface (295 sq. in.) would be 249 gm (8.8 ounces.). Under the current rule, the total area corresponding to this weight is 193 sq. in., obviously too small for an .049 powered job to compete against the 15's.

Because of the curve ball FAI rulemakers have inadvertently thrown, one seldom, if ever, sees other than a .15-powered model in FAI competition. Adopt-

ing either a no-wing-loading rule, or basing loading on the 3/2 power of the area, as above, will see the bringing of .049's and .09's to the FAI fold. This should act as a great stimulus to American interest in FAI Power.

Back in 1953 and 1954, we were satisfied with the Ramrod design and were building literally dozens of models just to find the best size for each engine we wanted to use. For each particular engine size, the process was one of trial and error from beginning to end. Many models were drawn up, built, tested, then discarded, only to repeat the process on one of a different size for the same engine. Most of this could have been eliminated if we had known then what we know now. By use of the process illustrated below, it is possible to find size by trial and error for just one engine, say an .049 for convenience, and then predict with an uncanny degree of accuracy what the size should be for any other engine and weight.

To set up a procedure for doing this and check its validity, we used the Ramrod 250 (KA) as a base to project theoretical areas for all other sizes, using only the desired weights (actually, the average weights for models already built) as a starting point. Our assumption is that the weights will be directly proportional to the cube of the span (a measure of volume, as is weight). The span was figured in feet rather than in inches to avoid large numbers.

As you can see from the table, the theoretical areas are, in each case, surprisingly close to the actual areas we had found from the trial and error method. (Fig. 3.)

These theoretical areas were found in this way: First, the weights for all were set into the table, followed by the span



and cube of span for the ".250." Assuming we want to find out, on this basis, the area to make an .09 job which we want to weigh 13 ounces, or twice the weight of the .049 job, we multiply the span cubed value for the .049 by the weight ratio of two ( $38.6 \times 2$  equals 77.2). Finding the cube root of this value (77.2), gives us a span of 4.26 feet. Dividing the span of the .049 job into the new span for our .09 model gives us a factor, 1.260 ( $4.26/3.38$  is 1.260), by which we can multiply all dimensions on the .049 plans to scale up to .09 size. Our .09 job area will be the square of this linear factor times the .049 area ( $1.260 \times 1.260 \times 250$  is 397).

In like manner, the proper size for any other model of a desired weight can be found by relating it to the .049 as in the above example.

It should be pointed out that this entire analysis presupposes several things:

1. We wish to scale one design to a different size, not mix different designs.
2. The same sinking speed is desired.
3. Structures are scaled approximately.
4. The same builder is involved. (Some modelers using the same plans as others build a .35 job as much as 9 ounces heavier than their friends.)

To further aid those of you who would like to use the principle stated above to scale your .049 original, or other model, to a larger one, we have prepared a graph. Using the graph will give you the same cubic wing loading on both models, and hence an equivalent glide. Also, should you wish to scale a design down, the graph will aid you in selecting the proper factor to use. (Fig. 4.)

As an example to illustrate the graph's use, let's assume you wish to scale your new 600 square inch .09 job up to one for a .20. Due to the fact that the 600 came out at 20 ounces, and is somewhat slow at getting upstairs, you'd like the larger version to just hit the required 35 ounces. In going to the graph, first determine the weight ratio: 35 oz./20 oz. is 1.75. Find 1.75 on the horizontal "Weight Ratio" scale and read up to where your imaginary line intersects the two curves. Reading over to the vertical scale will then show that the linear ratio should be 1.20 (the number by which you must multiply all 600 dimensions in order to produce the larger model) and the area ratio, 1.45. Your 20 job will then have an area of  $1.45 \times 600$ , or 870 square inches.

If your particular ruler should happen to be calibrated in centimeters, and your scale in grams, don't fret—the graph will still work, since only ratios are involved on it!

As an example to illustrate how the graph might be used to "dehydrate" a large model, let's assume you have an 800 square inch, .15 powered "Roater" which you were able to build to 26 ounces. You now wish to make .049 version and will tolerate an all-up weight of 8.5 ounces. Your weight ratio is  $26/8.5$ , or 3.06. In going to the graph, you will pick off 1.45 and 2.10 as the linear and area ratios respectively. Instead of multiplying by the area ratio, however, we must this time divide, to arrive at your new area of 381 square inches. In scaling down, multiply dimensions by the reciprocal (the number divided into 1) of 1.45, or .69.

Since the principle of cubic wing loading, which we were fortunate enough to stumble across, is basic in nature, there are undoubtedly many more applications than we have indicated in this article. We hope that knowledge of it may directly or indirectly help us all achieve greater satisfaction and success from our hobby.

# POLKS Model-Craft HOBBIES

314 FIFTH AVE., Dept. MA 89, N. Y. C. 1

WE IMPORT-EXPORT THE WORLD OVER  
DESIGNS • CATALOGS • REC. • TRADE PRICES • INQUIRIES • INVITED

## EVERYTHING YOU NEED FOR SMOOTH SAILING MODELS

### BATTERY CHARGER



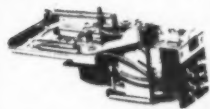
**WITH SELECTOR SWITCH**  
Charges 2 V., 4V. & 6V Wet Cell Batteries. Heavy duty transformer and rectifier. Compact, it has a ventilated metal case, features—indicator lamp and a selector switch for correct charging rate. 110 Volt A.C. input. **\$7.95**



**DUAL-MOTOR POWER UNIT**  
FOR IDEAL'S WHEELER CRUISER  
Fits into Ideal's popular Wheeler Cruiser. Has Twin Motors, Battery Holders, Switch & Universal Couplings. No soldering, wiring or cutting necessary. **READY-TO-RUN \$3.95**

**MARINE POWER-PACKS**  
A. FOR SMALL BOATS (6" to 12") **\$1.75**  
B. FOR LARGER BOATS (12" to 18") **\$2.00**

### FOR ALL BOATS



### ARISTOMATIC COMPOUND ACTUATOR FOR R/C

Self-contained electric motor (low-draw) plus special integral switching gives 2 channel operation from low cost single channel receivers. Includes: Electrical Switching Action-forward stop-reverse stop. Mechanical Directional Control—left-neutral-right-neutral. Operates on 3-6 V., complete with instructions. **\$18.95**

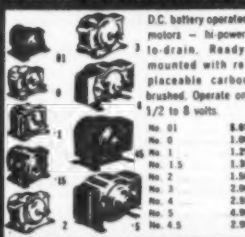
### ARISTO



### COMPACT "A" ACTUATOR

Engineered to withstand the strains and stress encountered in the radio control of aircraft, this servo is also ideally suited for boats, cars, etc. Small in size:  $1\frac{1}{2} \times 1\frac{1}{2} \times 2\frac{1}{2}$ , the Compact "A" is easily installed, requires no shock mounting. It has a low battery drain of only 200 M.A., allows more flight time with less battery changes. The high-torque motor delivers power to move even the largest control surface through a quiet running, long life gear train. All electrical contacts are self-adjusting for trouble free operation. There are no adjustments to make! The Compact "A" Actuator is sealed in a clear plastic dust cover; all wires are color coded, complete instructions are inc. **\$10.95**

### DOUBLE PER-MAG MOTORS



D.C. battery operated motors—hi power, 10-draw. Ready-mounted with replaceable carbon brushes. Operate on 1/2 to 8 volts.

No. 01	\$6.99
No. 0	1.00
No. 1	1.25
No. 1.5	1.50
No. 2	1.50
No. 3	2.00
No. 4	2.50
No. 5	4.00
No. 4.5	2.95

High ampere hr. capacity, small physical size, long life, NOT surplus batteries! Manufactured from hi quality materials, include heavy duty plates, clear plastic case, marked terminals. Add 50¢ shipping charges to battery prices.

**TYPE 64—6V., 4 Amp. Hr. Cap.  $2\frac{1}{4} \times 3\frac{1}{4} \times 1\frac{1}{4}$  \$4.75**  
**TYPE 23—2V., 3 Amp. Hr. Cap.  $(3\frac{1}{4} \times 2\frac{1}{4} \times 1\frac{1}{4})$  \$1.75**  
**TYPE 41—4V., 1.5 Amp. Hr. Cap.  $(1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4})$  \$1.65**  
**TYPE 26—2V., 6 Amp. Hr. Cap.  $(4\frac{1}{4} \times 2\frac{1}{4} \times 1\frac{1}{4})$  \$3.00**  
**TYPE 26B—2V., 6 Amp. Hr. Cap.  $(4\frac{1}{4} \times 2\frac{1}{4} \times 1\frac{1}{4})$  \$3.75**

**1" Sq. MILLIAMETER**  
Small enough to build into your Model! Specify range desired when ordering. Met. approx. 3/4 oz. 0 to 1.0 to 9.0 to 50 **\$4.95**

for that "finishing touch"  
**hobby spray gun**  
operates from vacuum cleaner

Painted spray gun for modelers, hobbyists, and the do-it-yourself fan. Repaint your model planes, cars, trains, boats, display models, etc. For that "finishing touch" get the Hobby Spray Gun—and it's

only **\$3.95**

sprays • dope • vinyl • lacquer • enamel • water base paint

Faster, Easier, with Smoother Finish

stewart / lundahl co.,

**ACME ALL BRASS FUEL TANKS**  
FOR BETTER PERFORMANCE!  
AT BETTER DEALERS EVERYWHERE

CHOICE OF CHAMPIONS

NO PLATING ON ACME TANKS.  
BAFFLES BUILT IN WHEREVER NEEDED.  
EVERY TANK TESTED FOR LEAKS AND GUARANTEED.  
MOUNTING STRAP WITH EVERY TANK.  
A TANK TO FIT EVERY PLANE AND BOAT.  
FREE CIRCULARS ON REQUEST.

Radio Control and Boat Fans. Use ACME Battery Holders for top efficiency from your batteries.

See your DEALER for ACME PRODUCTS

**ACME MODEL ENGINEERING CO. 6224N-15th AVE., BROOKLYN 19, N.Y.**

FROM **49¢** TO **98¢**

TYPE-U

DEALERS Write for nearest jobber in your area



# STICK WITH LEPAGE'S

TRADE MARK



... in the new and easier-to-use Pin-Point Tip. Gives you as much—or as little—as you need. (And right where you need it, too!)

There's a LEPAGE'S cement or glue for every hobby need.

Metuchen, N. J. © L'99

## Delta Dart (Continued from page 25)

made, indicated that the use of conical camber increased the glide velocity, increased stability, and decreased the sinking speed slightly.

From the information obtained in these tests it can be shown that the effect of conical camber is to reduce the induced drag by adjusting the lift distribution closer to that of an elliptical lift distribution, and so reducing the intensity of the tip vortices. To further note the effects of conical camber, we decided to check the performance of simple Jetex 50 powered models with and without conical camber. We decided to make two profile models of the F-102, since the camber principle was first applied to this plane and the large rudder needed no correction for scale effect. Also, we examined these impressive planes up close and saw them go through their paces when they were installed in 11th Fighter-Interceptor Squadron at Duluth, Minn., giving us an added enthusiasm. Another convenient feature of the delta wing is that sweepback gives effective dihedral so that you can build a flat wing and still have sufficient lateral stability.

The effect of camber showed up during the powered portion of flight, also. The reduced drag gave greater rate of climb and hence more altitude and longer duration. The models were easy to fly and, if you are a beginner or just a sport flier and care little about conical camber, performance, etc., but like realism and simplicity we invite you to try a straight F-102 for some enjoyable flying.

If you are a model designer, an experimenter, or just curious about conical camber, we invite you to try two models, one with and one without conical camber, and note the effects for yourself.

When Convair added conical camber to their F-102, they did not add it in the aerodynamically complete form but approximated it by using a constant radius of curvature of the leading edge from root to tip. They also reduced the curvature in the vicinity of the tip so that there is no curvature at all at the very tip. Latest reports indicate, however, that later models of the F-102A will have the complete form of conical camber.

In the past, the delta-wing model has not compared favorably with the conventional design in competition. Now the use of conical camber on the delta wing should reduce the inequality. Delta-wing models are a favorite with many radio control modelers too, and the use of conical camber on their deltas can give them improved performance. Another possibility of reducing drag and increasing the lift coefficient that should be investigated is that of using turbulators in conjunction with conical camber. A properly designed turbulator will increase the lift and reduce the drag due to separation at low Reynolds numbers.

Little need be said about construction. Choose your wood carefully so that the model will balance at the position shown on the plans. The secret of top performance is also a low wing loading so keep your model light. Our models weighed .77 ounces with the engine putting out a measured .88 ounces of thrust, enabling the model to fly straight up with certain trim adjustments. Cut out and cement together the inner portion of the wing first leaving the leading edge and elevons off.

Cement the wing to the fuselage before the leading edge and elevons are added. The cambered leading edge must be carved to shape. Tack glue a block to the front of the wing and carve the top curve first, then the bottom curve. Remove the lead-

ing edge to enable you to carve in the camber near the fuselage, and then sand it well and cement it on permanently. The straight leading edge is made of 1/16" sheet; just cement it into place and sand the leading edge round.

Some of you who build the model may find it easier to carve a uniformly curved leading edge. Those of you that desire to investigate the complete form of conical camber should carve little or no curvature in at the root chord and then gradually increase it uniformly until it is a maximum at the tip as shown in the plan.

Give the complete model one coat of thinned clear dope and if you wish you can spray on a thin coat of silver dope for realistic color. Realism may be further enhanced by detailing the control outlines, insignia, and so on, with a speedball pen and india ink or with a wet colored pencil (if you do not use a coat of silver dope). Air Force insignia decals can be purchased at most hobby shops. The leading edge will be greatly strengthened against nicks by an application of scotch tape. Cement some aluminum foil to the fuselage and wing in the vicinity of the exhaust to prevent scorching these parts.

Test glide the model in the usual way. To trim for a left climb first add two degrees left thrust, leave the left elevon straight and bend the right elevon down about 3/32". Add clay to the right tip until the model has a very shallow glide to the left. If the addition of clay to the tip leaves the model nose heavy or tail heavy, add clay to the nose or tail of the fuselage for the correct balance. Leave the rudder straight. When the glide is satisfactory, try a powered flight. Light the fuel igniter wick, wait for the thrust to build up, and launch smoothly on a level keel. The model should climb in a fast left spiral and glide almost straight. If the model spins to the right under power take some clay off the right tip. If the model turns too tight to the left under power add some clay to the right tip.

1. *Interavia*, January 1957, p. 59.
2. *Aviation Week*, November 26, 1956, p. 26.

## ATTENTION Week-end Pilots:

Here's a gold-mine of information, facts, hints and tips to help you get the most out of your plane and pilot's license.

Frank Kingston Smith (AOPA 124393) is a week-end pilot. He started out with a Cessna 140 and an auto map of his home state. Two years and hundreds of flying hours later he was piloting his whole family in a Cessna 172 with flight plans that covered two continents.

In a breezy, amusing account of his adventures in the air, Mr. Smith passes on all that he has learned about flying. You will find his book full of wonderful new ideas and suggestions that will add immeasurable enjoyment to your own hours of flight time.

WEEK-END PILOT has lively, yet authoritative chapters on:

- buying your own plane
- a plan for syndicate ownership
- the fine points of navigation—simplified
- the fun of cross-country travel
- tips on safety
- sharing America's historic spots with the family
- cutting the cost of week-end flying
- how to trade in your old plane
- getting your wife to tolerate flying

As you can see from this partial list of subjects covered, WEEK-END PILOT is the perfect guide-book for every flying enthusiast. Order your copy today. Just send this ad, with your name and address, and remittance of \$3.95, to the publishers, RANDOM HOUSE, INC., Dept. WP-3, 457 Madison Avenue, New York 22. Your money back in 10 days IF not delighted with the book.



### PROP-ROD

Thrills, Spills, Speed and Sport 12" aero-type racer for thrills on a tether or free running. Aluminum frame, machined wheels, racing tread tires, easy starting .049 Babe Bee Engine. **\$1000**

# Thimble-Drome

*dependable*

# PERFORMANCE

*the key to more fun in every model sport!*

*Engines that start easily!*

*Models that run well!*

*Planes that fly right!*



### WATER WIZARD

**Exciting Step Hydro**

Slam-bang hydro action at the beach, or in your swimming pool! 15" overall — 8½" beam. Easy-starting .049 Babe Bee Engine. Long life nylon prop. Spring Starter. **\$1000**

Send for Illustrated Folder M8

**L. M. COX MANUFACTURING CO., INC.** Box 476, SANTA ANA, CALIFORNIA

*World's Largest Manufacturers of Ready-to-Fly Planes, Engines, Fuel, and Accessories*

# New!

## FOUR NEW EDITIONS FOR YOUR AIR AGE TECHNICAL LIBRARY

Completely new, another set of four manuals—covers the "great" fighters of World War 2. Be up to date on the very popular warplane designs of the second world war. Plans, pictures, and data a collector's item.



### P-51 MUSTANG

Fastest of all fighters of the period, this magnificent plane fought the world over



### P-38 LIGHTNING

Famed twin-tailed, long-range, two-engine fighter was most unique



### P-47 THUNDERBOLT

Powerful slugger, the P-47 earned name "the Jug." Rugged, powerful.



### F4U CORSAIR

What the P-47 was to the Army Air Force, the Corsair was to the Navy and Marines.

AIR AGE INC. 551 Fifth Ave., New York 17, N. Y.

Herewith \$..... for the following booklets in your TECH MANUAL Series at 50¢ each, or enclosed \$2.00 for all four ☐

.....copies P-51 Mustang

.....copies P-38 Lightning

.....copies P-47 Thunderbolt

.....copies F-4U Corsair

Name.....

Address.....

City.....State.....

## A Place to Fly

(Continued from page 13)

good letter from the President of the Fresno, (Calif.) Control Liners stated, as did 10 other letters, that the Director of Recreation for the city was interested and helpful. He says "It seems that we no sooner obtain a site than for some reason we were asked to leave . . . complaints . . . noise . . . the usual reasons. The City Director of Recreation was at first reticent. I suggested a possible site, a newly grassed park on the outskirts . . . quite suitable. He agreed to let us use the area, subject to city council approval, if we secured written approval of all people living on the streets bordering the park.

The petition we circulated contained conditions which we imposed upon ourselves with an eye to the future. The conditions were as follows:

(1) All fliers would be covered by insurance provided by the Western Associated Modellers group with which our club is affiliated. The insurance covers bodily injury and property damage through Lloyd's of London.

(2) We would fly only at given times on Saturdays and Sundays.

(3) All flying would be under adult supervision.

(4) No jet models would be flown. (Jet noise is a justifiable cause for complaint.)

(5) Flying circles would be completely "roped off."

The letter stated that these conditions were more severe than they would like, but, note the eye to the future. This agreement gives the club good facilities and the possibility of later softening of the agreement if their experiences are good.

It is interesting to note that all except three neighbors signed the petition. When they found out that everyone else had cooperated, the last three signed. It is stated, "So far our experience with the field has been good, no complaints . . . we feel that the fact that the residents nearby were consulted . . . is of great influence." Notice here again a definite plan, specific rules, good leadership, and hard work brought success.

3. From Westfield (Mass.) Aeronauts comes the news that after the usual sad experience of members cutting grass and making a good flying field, complaints terminated its use. However, its Advisor "went to see the former Mayor, who owns acres of land." They put up their case and outlined a plan requesting use of a lot about 1½ miles from town, in a semi-industrial area. This they were granted rent free. The former Mayor "is very much interested, and hopes to see us build a club house this summer. At present we are operating 150' circles. We have our own electricity and our own PA system." Because some of the boys do not like to fly over blacktop, they plan only two such circles, others will be clay or grass. They plan a two-way strip for radio-control flying.

The Advisor makes the following points: (a) "The club does its own maintenance. We have agreed to set up a work night every Thursday . . . so everything is ready for the week-end. Our flying hours are 8 a.m. to 8 p.m. weekdays. Sundays from noon to 8 p.m. For sanctioned meets we ask the Playground Department to mow our grass. The Auxiliary Police take care of contest traffic, the Air Scouts handle parking of cars, and the Kiwanis Club, which is our sponsor, runs a refreshment stand and gives us a percentage." (b) Noise is not a problem if you "get the right location and if you control the flying time." (c) It is important to let the public

## SEVEN TECH MANUALS WITH PLANS, PHOTOS, DATA, FAMED PLANES.



TECH MANUALS 50¢ each.

### B-25 MITCHELL

Best medium bomber WW 2, the ship used by Doolittle on Tokyo raid from carrier.

### B-24 LIBERATOR

Companion in arms to the B-17, the Liberator "heavy bomber" noted for range.

### B-17 FLYING FORTRESS

The most famous of all the World War 2 warplanes, B-17 "heavy" was tough ship.

### CURTISS P-40

From beginning to end, P-40's prominent in all theatres excepting the European.

### F-86 SABRE

What the Mustang was to WW 2, the Sabre was to Korean war. Classy jet fighter.

### F-94 STARFIRE

All-weather jet with tremendous rocket firepower, seeks out intruder by radar.

### B-47 STRATOJET

More of these six-jet bombers in Strategic Air Command than any other machine.

AIR AGE INC. 551 Fifth Ave., New York 17, N. Y.

Herewith \$..... for the following booklets in your TECH MANUALS at 50¢ each.

.....copies B25

.....copies B24

.....copies B17

.....copies P40

.....copies F86

.....copies F94

.....copies B47

☐ Enclosed \$3.50 for all seven copies.

Name.....

Address.....

City.....State.....



# ALL EYES ARE ON ENTERPRISE



**\$3.49**

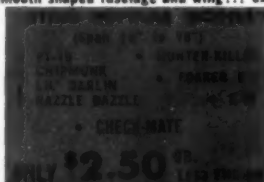
SPAN: 26"  
LENGTH: 23"

## "READY-TO ASSEMBLE" SERIES

KITS INCLUDE Famous Satin-smooth shaped fuselage and wing... exclusive with Enterprise Models



**KNIGHT TWISTER** - Patterned after one of the most fabulous bi-planes of the thirties.



**DELTA DART** Patterned after the fabulous Convair F-106A.

## COMBAT-STUNT

### SUPER-WHIPSAW

FOR .18 TO .35 ENGINES

SPAN: 41"

### WHIPSAW

FOR .15 .19 ENGINES

### HAWKER TYPHOON

**\$2.95**

31" SPAN

FOR .19 .25 ENGINES

**\$2.95**

**\$1.95**

## FIRST IN QUALITY • FIRST IN VALUE • FIRST IN DESIGN

NEW! 1959 CATALOG—SEND 10c  
FOR POSTAGE AND HANDLING

ENTERPRISE MODELS, INC.  
MINEOLA, NEW YORK

know what you are doing. "You gain a good reputation by doing something constructive for the young people of the community, and with this good reputation people will overlook the noise." (d) "Our Club is operated strictly according to AMA regulations." This helps also in gaining a good reputation.

4. Anyone who has driven south from Syracuse, N.Y., can picture the ideal location obtained by the Syracuse Sky Knights in Manlius, N.Y. They used a new method to obtain the use of a beautiful field, which merits a try in other parts of the country. The Elmira Flying Sparks tried the idea with equal success. The key to this situation is the Soil Bank Program of the Department of Agriculture.

This plan can provide an excellent site for control line and radio control flying, possibly even for free flight. It cannot, however, provide for any blacktop circles. Hundreds of communities may find this an adequate solution to their flying site problem.

Look for the Agricultural and Stabilization and Conservation County Office. This will be in your County Building. If you cannot locate it, ask any County Agricultural Agent or the teacher of vocational agriculture in your high school. The Agricultural Stabilization and Conservation County Office knows the location of all land in the "Soil Bank" program. Some land is bound to be clear and level, just right for flying.

One of the "spark plugs" of the Sky Knights says "I believe our deal went smoothly because we first talked with the owner of the property and were lucky to find one who was interested in model flying. He sent us to the conservation officials, and then sat down with his own lawyer and went over all the legal aspects

of the deal. We took out a public liability policy to protect the club and also the owner of the field. We are also working on incorporating the club to protect the individual members."

This leader said that the Soil Bank officials were very cooperative, so this idea should work just as well for you. Look in your phone directory under some such title as Soil Conservation, and make your first contact through them. Keep in mind that the land cannot be "improved," only mowed. Still, who would turn down a real nice place to fly. The photo of their site would make any model flier drool. A huge flat field with no trees!

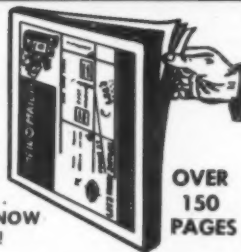
5. One of the most glamorous sites is the Charles A. Donnelly, Jr. Modelport, in New Orleans, La. The President of the New Orleans Aero Club who is also a model plane Contest Director says, "After being pushed around as most modelers are in various cities, I met a man willing to listen to my story." This prominent "oil" man was interested in helping modelers. He had his company architect draw ideal plans. The "Modelport" is located across from an amusement park, and the flying site measures 320 ft. by 380 ft. The field is enclosed with chain link fence, and has auto parking space outside the fence. There are four flying circles. One for 70 ft. lines and three for 60 ft. lines. Each has a 6 ft. concrete slab for pylon flying.

Read on and drool some more. He says "Located in the corner of the field is the contest tower. The upper floor all glass enclosed, provides an area where all clerical (contest) work, tabulating and recording is carried on. The Contest Director has an electronic timing and lap counting device in the tower, and all trials are directed by inter-comm. to stations in the circles.

(Continued on page 50)

## It's Here! 1959 LEE'S CATALOGUE

- PLANES
- BOATS
- ACCESSORIES
- ENGINE PARTS
- AND PRICE LIST



IF YOU DON'T  
HAVE THIS  
CATALOGUE...  
YOU DON'T KNOW  
WHAT'S MADE!

OVER  
150  
PAGES

ONLY

**50c**

REFUNDABLE ON FIRST  
\$10.00 PURCHASE!

### LEE'S FINE PRODUCTS

	4 Oz.	Pint	Qt.	Gal.
• LEE'S GLOW FUEL	.79	1.40	4.95	
• LEE'S CLEAR DOPE	.40	1.20	2.19	8.50
• LEE'S COLORED DOPE	.45	1.50	2.89	10.95
• LEE'S CEMENT	.50	1.79	3.19	10.98
• LEE'S GRAIN FILLER	.40	1.20	2.19	8.50
• LEE'S BALSA PUTTY	.79	2.98		
• LEE'S KWIK KLEEN	.59			
• LEE'S THINNER	.35	.90	1.65	5.25

All products are available at a Lee's approved dealer agency or directly from us. Send us your dealer's name and location with your order so that we might contact him.

2072 FRONT STREET, EAST MEADOW, L.I., N.Y.



# "AIR ACES OF THE 1914-1918 WAR"

Edited by **Bruce Robertson**

Produced by **D. A. Russell, M.I.Mech.E.**

## Contents:

Biographies of 135 Aces, and the military background to their particular Air Service, of the eight main countries engaged in the 1914-1918 War: British, French, American, Belgian, Italian, Russian, German and Austro-Hungarian. Lists of each country's Aces by scores, with unit in which served or machine flown; many identification markings; lists of every airman to receive the British Victoria Cross, the German Ordre pour le Merite or the Congressional Medal of Honor. Altogether, over 1,500 airmen are mentioned in this amazing book. Book contains 212 large pages 11¼" x 8½". Bound in stiff boards, gilt blocked. Weighs nearly 2¼ lbs. Over 100,000 words. Over 320 photographs, many of which have never before been published!

**\$8.50**

THE PUBLISHERS  
FIXED PRICE

**\$8.50**

This price includes airmail acknowledgment of your order, especially strong cardboard carton for safe transit, postage and insurance of your copy. Pay by personal check if more convenient than buying an International Money Order. Post direct to Publishers, address below. Your copy despatched same day your order received. Average transit time to United States and Canada only 12 to 16 days.

**HARLEYFORD PUBLICATIONS, LTD. LETCHWORTH, HERTS, ENGLAND.**



"A splendid PA system keeps contestants and spectators constantly informed. Surrounding this upper room is a balcony from which supervision can be exercised."

Work tables with formica tops are part of the furnishings of the 2nd and 1st floors, while a shop, work bench, and lockers are also on the 1st floor. Two rest rooms, and a drinking fountain are appreciated, and a flag pole with wind sock and flags trim up this excellent control tower. Outside four flood lights make night flying possible. Pretty keen Modelport! New Orleans is really fortunate, but you can be too.

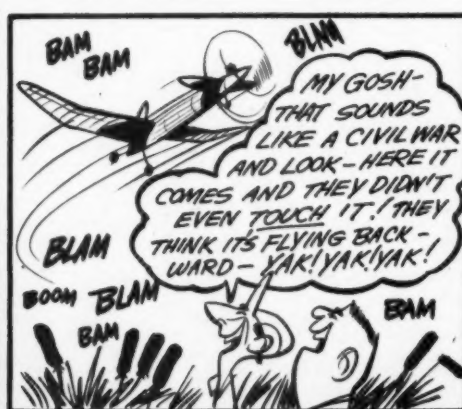
Possibly your eventual site may not have all the features of the New Orleans Modelport, yet with proper planning you can look forward to less complaints and more permanence. The 30 cities studied showed

increasing permanence. A great many new Modelports are now in process. Cities like Dayton, Ohio; Ft. Wayne, Ind.; Detroit, Mich.; and smaller cities like Union, New Jersey, have operated Modelports successfully for periods varying from 10 to 15 years. Evidently these cities have found a satisfactory solution and noise is not a serious problem.

Many other cities and towns have interesting and very adequate flying sites. Such places are St. Paul, Minn.; Boulder, Col.; Los Altos, Burbank, Oakland, Alameda, Livermore, Hayward, Sunnyvale, Santa Ana, San Mateo, Calif.; Plainville, Conn.; Denver, Col.; Wichita, Kan.; Houston, Tex., and many others. Then there is the huge Los Angeles Model Airport in the Sepulveda Basin area as fully described in the March 1959 issue of this magazine.

From the Vancouver (Canada) Gas Model Club bulletin it is evident that the same problems exist to the north. Their approach is unique, broader than usual, but good. The British Columbia Society of Model Engineers decided to build a center for all hobbies. They approached the municipality for a grant of land. The Park Commissioners felt that this would be a worthwhile project. They gave nine acres of land worth \$70,000. On this nine acres will be built three U-Control circles, a pond 100 feet by 200 feet, a railroad track around the pond, a three-story hobby center building, complete with hobby museum, machine shop, woodwork shop, ham radio room, and a complete custom car-building shop.

At the present moment, a forest appears  
(Continued on page 52)



# Sterling SPECIFIES AMBROID!!

Most of the people in the model plane industry are enthusiasts from way back, as well as being long-time Ambroid cement users. Like genial Ed Manulkin of Sterling models (seen below with his 'Corsair' and 'Space Master Jr.' kit models), who built his first model plane with Ambroid back in '29! Says Ed — "Ambroid is the finest and strongest cement ever manufactured — its superiority making itself felt not only in the model plane field, but also in model boat building. We at Sterling recommend Ambroid to all model builders — and that also goes for Ambroid Plastic Cement, which is perfect for our plastic Chris-Craft 'Cobra' and 'Express Cruiser' electric-power boats."

Look for the familiar Ambroid blue and orange tubes (Regular, Extra-Fast & NEW Plastic Cement) at YOUR local model shop.

"EXTRA-FAST" AMBROID  
FOR LIGHT MODELS  
& "FIELD" REPAIRS



"REGULAR" AMBROID  
— FOR MAXIMUM  
STRENGTH CONSTRUCTION



CONTENTS 1-3/4 FL. OZ.

for **SPEED AND STRENGTH**

**AMBROID**

THE UNIVERSAL  
*Liquid*  
**CEMENT**

WATERPROOF  
HOT FUEL PROOF  
RAPID DRYING  
FLEXIBLE  
TRANSPARENT

AMBROID CO.  
EST. 1910  
WEYMOUTH, MASS.  
U.S.A.

**AMBROID**

STYRENE  
**PLASTIC**

**CEMENT**

BONDS  
IMMEDIATELY  
PERMANENTLY

DRIES  
CRYSTAL CLEAR  
FAST

BY THE  
MAKERS  
OF FAMOUS  
AMBROID  
CEMENTS FOR THE  
MODEL INDUSTRY —

**AMBROID CO.**  
Weymouth, Mass., U.S.A.

"EXTRA-FAST" AMBROID (Model Airplane Cement)  
30 ea. Tube . . . 14¢

"SYNTH-WOOD" (Model Airplane Cement)  
as a filler & for hairline  
8 Dime Can . . . 14¢

NEW AMBROID PLASTIC  
Cement (New Tube) . . . 14¢

REGULAR AMBROID  
1-3/4 Oz. Tube . . . 30¢  
Orange Tube . . . 40¢  
1 Pint Can . . . \$1.75

AMBROID SOLVENT  
1 Pint Can . . . \$1.25

**NEW!** ➡

After FIVE Years  
of Research . . .

In Every Field There's A Leader — In Cement It's



AMBROID CO. • BOX 30 • WEYMOUTH 88 • MASSACHUSETTS

## HERE IT IS! THE LITTLE ADV WITH THE BIGGEST VALUES IN RC

AT LAST! Full house operation is now possible on a single RC channel using the NEW THT/PH receiver. The super reliable STD Esmo THT used as "front end" to give you proportional rudder & escapement operated elevator and motor controls. ALL with your present CW XMTS using a simple pulse width type pulser. Simple, inexpensive & fully reliable multi-control at a price within reach of all. \$7.95

ADAPTOR UNITS to convert existing models of Esmo THT receivers to the FULL HOUSE SYSTEM ..... \$9.95

A SPECIAL DUAL CONTROL THT for the boaters who only require simple rudder and motor operation ..... \$4.95

FOR ULTIMATE PERFORMANCE AND DEPENDABILITY... THE EXPERTS SAY: "The Esmo THT is without a doubt the best single channel receiver buy in the RC industry."

STD THT with MICRO GEM or Paladium non-pitting contact relay, housed in small attractive metal case \$1.95

ANOTHER NEW DEVELOPMENT in receivers, asked for by many, THE ESMO THT/M.C. gives reliable motor control and proportional rudder (fall safe if desired). Comes in same size case as STD THT, only 4 on wt. A ball, drain under 80 ma. Complete ready to fly, deluxe unit ..... \$9.95

YOU ASKED FOR THIS: The ESMO '35 model all purpose battery charger. A heavy duty underwriting company unit that will properly recharge at mfr's ratings all cells and batteries used in RC work. Note that we state "mfr's" specified charging rates. Other chargers simply state "will recharge all types" but are not designed to recharge the popular BB54A surplus, etc. cells at the 2 amp rate but instead at some low value which would require 24-48 hours to fully recharge them. The Esmo charger is provided with a 6 terminal connector board and 3 controls that allow fine regulation of regular and trickle charge of the popular new NICADs, etc. .... \$8.95

NEW MINI CHARGER, a specially designed unit for charging the VOLTABLOC & SILVERCELLS. Compact unit with full wave constant current circuit for PROPER regular or trickle recharge service, a ESMO Super Special \$4.95



ALL THAT'S NEW & BEST in RC, available first at ESMO, NEW MONO MODULATOR, a compact stable modulator suitable for converting ALL CW XMTS to TONE. Especially suitable for the MAC IIS. Requires only a few minutes to install. Tone variable 300 to 1200 cps \$4.95

ESMO - NEW YORK

38 Walker Street  
New York 17, N.Y.  
Telephone: WA 4-1111

BUY ESMO RC

at your local dealer and  
BROWN'S HOBBY CENTER  
201 Broadway, Bronx, N.Y.

to be occupying this area, but not for long. In May the bulldozers would level the field and the tress will have to be cut down. In July the Engineers' Langley track goes in. In August the grass will be seeded for the flying field. The last sentence is the key to their ambitious program, it says, "See you out there every Saturday morning 8 a.m. to 1 p.m. Bring an axe!"

Here are some points that from the analysis of 30 reports seem to be important in preparing your plan:

1. **Leadership**, should be adult, strong yet cooperative.

2. **Planning**, develop a plan in writing that will have appeal to groups, then get the help of local businessmen or organizations.

3. **Self discipline**, be ready to curtail flight hours, or even install motor mufflers in order to show cooperation.

4. **Support**, attend city meetings and get to know people and city problems. Cultivate the friendship of your Superintendent of Recreation, State Director of Aeronautics, County Soil Bank Officer, newspaper staff, airport manager, Kiwanis, Rotary, Exchange Clubs, etc.

5. **Public relations**, guard your club reputation, don't let one or two "non-cooperative" members get you in trouble. Take time to write newspaper accounts of the science achievements of members. News-men will take the photos. Keep your skills on display. Make friends with neighbors if you can.

6. **Reliability**, keep your word, build your club reputation.

7. **Work**, roll up your sleeves, you may have to clear land, grade, seed and maintain for a while until you can prove that you have a worthwhile activity.

8. **Cost**. What will it cost a Recreation Department? Some say about \$1,000 replacement cost and \$100 per year for maintenance.

Several letters from Directors of Recreation say that until the noise problem is improved, there is no chance of getting a favorable flying site. There are at least three motor mufflers on the market. Have you thought that even though it is not desirable, still if everyone who flew at your site used them, competition would be fair?

What is your particular problem? What ideas can you use from the experience of others cited above? Reflect, then plan!

## Varicomp Switcher

(Continued from page 29)

sturdy action is obtained for the elevator on the third and fourth pulses. ("Quick blip" for motor is the fifth "channel.") The elevator horn decides the positions of the elevators. If placed on top of elevators, the third position is down and fourth is up. If horn is reversed, the action is reversed. Due to the fast or slow rate at which the Varicomp accepts the pulses, the servo action from switcher is reliable and stable. Since 4½ volts on each side of servo hook up give better power, working the servos to three volts or lower still will give plenty of service.

The action of the switcher will give such rapid action that, if the fourth position is necessary, you can pass through the third pulse almost without noticing it. There is no breakdown on the switcher if built correctly. The unit has been bench tested for six months and 10,000 operations and still is working.

The bottom Varicomp to which the switcher is attached should use ¼" rubber, with at least 75 to 100 turns on it at all times. No spark suppression is necessary, so this is of some value to the receiver. Hook-up should be followed as per manufacturer's schematics of each unit (Varicomp and servo). Use any servo that will Hold, Release, Hold (Citizen-Ship or Bonner). The mechanical relays are contacts are obtained from any pinball machine (get from service man or company). The author can advise prices and sources of material.

Photo shows parts:  
Base, insulated board; contacts (2); old needle valve ¼" long (cut from threaded end); 2 mounting bolts 4-40 (1" long with binding nuts); 1 center torque board (obtained with Varicomp); 1 pc. steel wire

(Continued on page 54)

## FOR SUMMER FUN



BIG 32-36" AHS FLIER  
4 types, 8a. only ..... \$8.95  
82" S. Baiton (R.C.) ..... \$34.95  
79" L. Sedan (R.C.) ..... 14.95

1/2" Scale MASTER KITS

Great Lakes Tr 30" ..... 3.95  
S.P.A.D. XIII 19" ..... 4.50  
Pohlar Triplane 17½" ..... 3.50  
Boyley Geo-Sea 17½" ..... 3.50  
Supermarine 56-8 22½" ..... 4.50  
Mr. Mulligan 23½" ..... 5.50  
Flying Fortress 72" ..... 14.95  
Martin B-26 48" ..... 34.95  
Douglas DC-3 70½" ..... 32.95  
Rep. Sea-Sea 38" ..... 5.95  
Many Other Kits from 79c

\*SEE YOUR DEALER FIRST! If he doesn't stock it, send direct. Include 35c per model for post-pst, Send 5c for catalog of 101 Cleveland Models.

## THEY'RE THE UPMOST

Yes CLEVELAND MODELS always have been—Since 1919. Now with the SUPER-WHATZIT by Riley Wooten you'll see "The Upmost" in a whole new order of winners.

But, take the SUPER-WHATZIT 37" Combat Controller. A cinch to build in an evening for a "35" but slick to 19's to 29's for sport flying. (Whatzit was described in A.M.T. July '58.) It's fast and so stable you can watch what the other fellow's doing. Maneuvers at very high speed and turns tight without speed loss. Flies well at end of line, even in 30 mile winds. GET IT TODAY! Surprise the crowd with this winner! Kit LC-51\* \$350

10' ALBATROSS  
RC GLIDER  
Only R. C. Glider today—Flies free \$750  
Right beautifully. Kit E22\* \$195

## SUPER-WHATZIT



6' CLEVELAND CONDOR  
SOARER—Soars for hours—  
Loads of fun. Kit E19\* \$1.95

CLEVELAND MODEL PRODUCTS CO.

4506 LORAIN AVE. "Since 1919" CLEVELAND 2, OHIO

## ANNOUNCING the FINE NEW THE FIRST Really NEW R/C Model Advancement in over 5 years!

Not since the advent of the 1st Live Wire has there been such a sensational advancement in R/C model design as the new Custom Live Wire offers! After 5 years of intensive development the "Custom" comes with features which make it the first fully aerobatic R/C model kit! Only now is it possible to duplicate completely full scale aircraft controls and achieve performance equal to them, both in the air and on the ground!

The "Custom" has symmetrical airfoil wings for greater stability and equalized inverted maneuvering. Its Biplane wings give the area required to provide a low wing loading, the answer to quick, snappy maneuvers! The Biplane also affords a very low gross weight plus compensation for ease of transportation. Coupled with the fine aerodynamic qualities comes a brilliant undercarriage system which by the use of a steerable tail wheel and wheel brakes gives absolute ground control on the roughest of terrain. Taildrone, landing gear and all tailing now become a pleasure!

With the "Custom" Live Wire you have the most modern and versatile radio controlled miniature aircraft that could be wished for!

The fine deluxe kit includes:

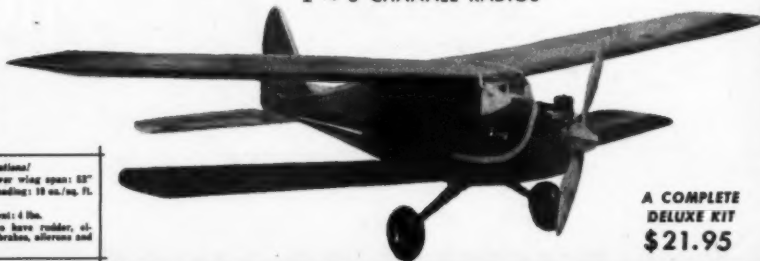
- Great full size plans with complete assembly details!
- Complete radio installation instructions with details!
- Complete preflight and flyng instructions!
- Selected premium grade balsa and tough hard maple parts!
- Precision machined and sharply die cut parts!
- Ready formed dorsal gear and necessary hardware!

Check these specifications!

Top wing span: 56" Lower wing span: 52"  
Wing area: 1280 sq. in. Wing loading: 18 oz./sq. ft.  
Flying weight: 5½ to 7 lbs.  
Model weight minus R/C equipment: 4 lbs.  
Controls as desired: Possible to have rudder, elevator, aileron, tail wheel, wheel brakes, ailerons and flaps.

## Custom "LIVE WIRE"

A truly Spectacular Multi-Channel R/C Model!  
FOR USE WITH .25 to .35 ENGINES AND  
2 TO 8 CHANNEL RADIOS



A COMPLETE  
DELUXE KIT  
\$21.95

deBOLT MODEL ENGINEERING CO.

"Home of Design-engineered Models"

SEE YOUR HOBBY DEALER

IF NOT CONVENIENT ORDER DIRECT



# Surprise! Fun! Authenticity!



## With these NEW Monogram Models

Here are two fine new kits in a long line of famous Monogram models.

Both are authentic and true-to-scale and packed with plenty of fun and many surprise features. See them at your favorite store today.



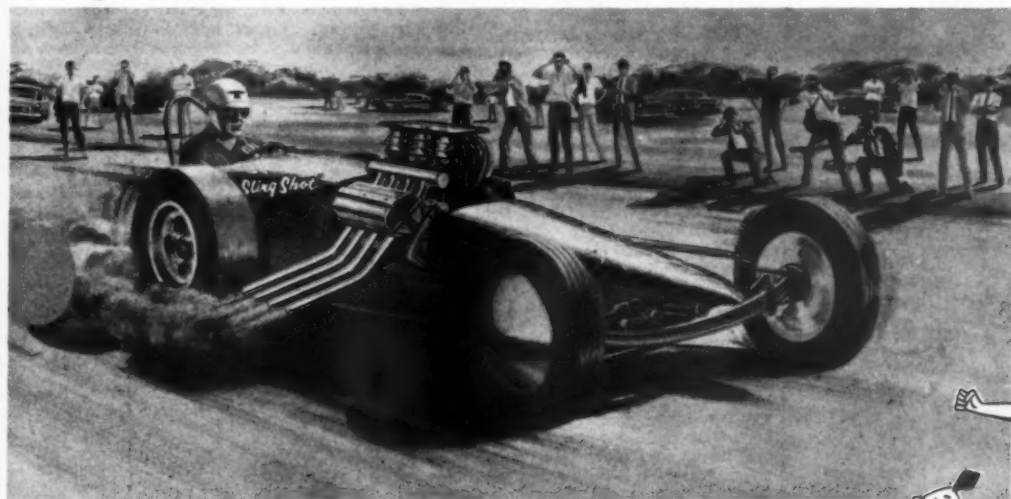
Yeah!  
**It's a JET!**  
Only 98¢



### Army's New Jet-Turbine Iroquois Helicopter

New all-plastic model of Jet Helicopter HU-1 Iroquois recently adopted by U.S. Army for utility use in combat zones. This is the first jet-turbine powered helicopter and the first model of this unusual aircraft. Main and tail rotors both revolve. Cabin doors can be set in open

or closed position. Completely detailed cabin interior and instrument panel. Model follows hospital transport design and is accompanied by five figures—pilot—two stretcher bearers—two men on stretchers. Authentic decals.



### It "Goes" Too! Power With "Jetex" CO<sub>2</sub> Capsule

The slingshot Dragster is an authentic drag strip racer model scaled from top-winning cars. Has all of the conforming drag racer features—long nose shell housing, big exposed engine in center, oversize exhausts, big squarish rear tires and the driver in the "hot seat" at the extreme rear. Kit includes scale Chrysler engine with 6 carburetors, pin stripe decorative decals and power unit mount for racing.

It's a Slingshot  
**Dragster**  
Kit Only 98¢



## The World's CHAMPIONS TORPEDO .19 R.C.



New F.A.I. Radio Control  
Dist. Record - 37.1 mi.\*  
(Beats former Russian  
hold record by over 400%)

Estab. April 12, 1959  
by Dick Everett,  
Chino, Calif.

The plane  
"El Monstro"  
was powered by a  
**TORPEDO .19 R.C.**  
using Supersonic "100"

\*Being homologated by the F.A.I.

## TORPEDO .19

F.A.I. Endurance Record: Time—5 hrs.,  
29 mins., 1/4 sec. Established April 15,  
1958 by Kenneth Willard, Van Nuys, Calif.  
The plane "Avelon Breathless" was powered by a...

**TORPEDO .19**  
using Supersonic "100"



KAP  
All-...  
101 ANGEL 18 CALIFORNIA

**YOU'RE ALWAYS  
IN GOOD HANDS**



When You Buy At  
The Store Displaying  
This Dealer Emblem

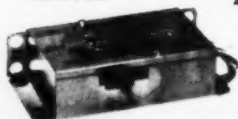
(Dealer inquiries invited)

Write To:

**CRAFT, MODEL & HOBBY INDUSTRY**  
30 East 29th St. New York 16, N.Y.

**Bonner**

VOLTAGE: 2 TO 4V  
BATTERY DRAIN:  
NO LOAD 200 - 300 MA.  
WINDING 2 OHM



**FEATURING OUR OWN MOTOR ESPECIALLY  
DESIGNED FOR SERVO USE—NOT AN IMPORT!**

DELITE BEARINGS - 92% SILVER BRUSHES  
TURNED COMMUTATOR - NYLON HOUSINGS

**TEST MODELS OPERATED FOR OVER ONE  
QUARTER MILLION COMMANDS!**  
AVAILABLE AT YOUR DEALER NOW!

**BONNER SPECIALTIES**

2900 Tilden Ave.  
Los Angeles 64 Calif

ANNOUNCES THE  
**ALL NEW  
DURAMITE  
MULTI-SERVO**

'12"

WEIGHT: 2 1/2 OZ.  
OVER 4 LBS. THRUST

1/16" x 1" (with washer to fit); 2 cam  
followers (1 for rudder) (1 for switcher  
Varicomp); 1 3/32" x 1/2" eyelet; 2 1/2"  
spacers.

Assemble switcher before mounting to  
bottom Varicomp with aid of 2 1/2" spacers.  
Contacts should be mounted in over-  
size holes so adjustments can be made.  
Once set, the relays can be forgotten as  
they hold indefinitely. The cam follower  
should be loose enough so that it can rotate  
in needle valve. Do not solder to wire  
while in place on nylon gear. The Vari-  
comps should use 4 1/2" volts for a good  
reliable action; 1/4" rubber on both Vari-  
comps. Use color code book hook-up as  
servo specifies. If instructions are followed,  
you will have many good hours of  
flying fun. You don't need a 5-channel  
job to do most of the maneuvers the Multi  
boys do!

## Foreign Notes

(Continued from page 2)

young hobbyist with small glow engines,  
in this way, would have a serious effect on  
the strong position that the diesel has held  
for so long.

### GERMANY

Surprise item from West Germany is that  
the big Metz radio firm—widely known  
outside Germany for their Mecablitz electronic  
photoflash units—are in the model  
radio control business. They have just announced  
their first outfit, to be known as  
the Metz Mecatron.

This is an audio-tone outfit for 27.12 mc.,  
and gives a choice of single-channel control,  
or three channels by means of adapter  
units on receiver and transmitter. The  
transmitter uses a single tube and two  
transistors and features a transistorized  
D.C. converter to utilize the cheap power  
supply of four 1.5-volt batteries. Alternatively,  
it can be connected to a 6-volt car  
battery supply, or, with the aid of a special  
connector cable, to a 12-volt car battery.  
It is housed in a flat plastic case approximately  
8 x 6 x 2-in., with carrying strap. The  
Mecatron receiver is fully transistorized and  
is temperature checked up to 140 deg.F. It  
operates on 6 volts and is enclosed in a case  
measuring 3.6 x 1.8 x 1.4-in. A neat battery  
box with switch and plug connection to receiver  
is available.

This new Mecatron equipment only  
started reaching the hobby trade in late  
May, but already Metz is working on new  
equipment, including a proportional outfit.

### INDIA

The tenth annual All-India Model Aircraft  
Rally was, this year, held on the newly-built  
Indian Air Force runway at Barrackpore. The  
meet was officially opened by the Indian Minister  
of Civil Aviation in the presence of a distinguished  
gathering of officers of the government and armed  
forces of India and before about 4000  
members of the public.

Official support for model building is  
now being considered in India. The Directorate  
of Civil Aviation is investigating the possibility  
of establishing a modeling center at Behala,  
which would include flying sites, workshop facilities  
and a design and research section. In this way,  
plus concessions for the increased import of modeling  
goods, it is hoped to greatly expand model  
interest in India.

### AUSTRALIA

Carrier deck events are getting popular  
in Victoria. In addition to using the accepted  
scale navy carrier type models, enthusiasts  
have restored to converted team-

racers and stunt jobs to try this fascinating  
branch of the hobby, which is so little  
known outside the U.S. Practically all the  
engines used at present are of the O.S.  
Multi-speed series with coupled exhaust/intake  
throttles operated through a third line,  
the J. Roberts Flight Control handle and  
bellcrank being most widely favored.

Model building in Australia follows U.S.,  
rather than British trends and the main  
center of activity is concentrated on the eastern  
sea board state of Queensland, New South  
Wales and Victoria. Over on the western  
side, Noel Mitchell, secretary of the West  
Australia Model Aeronautical Association,  
Perth, tells us that, with 1500 miles separating  
them from the next capital city, Adelaide,  
exchange of modeling ideas between east and  
west travels slowly and that, as a result,  
West Australians tend to take a lead from  
trends as reported in M.A.N. Mitchell asks  
us to mention that if any U.S. modeler  
would care to write to him, he would  
welcome such correspondence. His main  
interests are team-racing, stunt, combat  
and RC and his address: 370 Mill Point Road,  
S. Perth, W. Australia.

**SOUTH AFRICA**  
Our Capetown correspondent, noted  
South African modeler, Pete Visser, reports  
that the recent S.A. Nationals, held this  
year at Johannesburg, were quite a success.  
For the energetic Visser they were, anyway.  
... Driving 1000 miles up from the Cape,  
he placed in six events, obtaining three  
firsts (Open Rubber, FAI Gas and Nordic  
A2) and, by a coincidence, three fourth  
places: KA Gas, Open Glider and A Gas.

Two other Cape Province modelers,  
Brian Partridge and Robbie Rowe also did  
well, Partridge winning KA Payload and  
Jetex, and Rowe taking the B Gas event,  
plus the F/F Championship Shield. Grand  
National Champion (F/F and C/L to qualify)  
was Cannon of Bloemfontein and the  
Champion Club was the well-known  
Western Providence M.A.C.

U.S. design trends are evident in Class  
A and B free-flight gas with Torpedo powered  
Ramrods and Spacers still much in favor—  
especially for Class B. T/Hoppers are the  
accepted engines for KA. Diesels in English  
model designs are more widely used in FAI  
gas, and Visser's winning Dream Weaver  
used an Oliver Tiger, although diesels, in  
general, were at a disadvantage at the high  
altitude (6000 ft.) of Johannesburg.

## ALL-NEW!

BY **KAPPAK**

for  
1/2 A's  
to 60"



**KWIK KLIP 39c**

- |     |                               |     |
|-----|-------------------------------|-----|
| V1  | Kwik Klip, Only               | 39c |
| V1C | Kwik Klip, 12 On Card         | 39c |
| V2  | Kwik Klip Cord Set            | 39c |
| V3  | Battery Cord Set, Unassembled | 39c |
| V4  | Battery Cord Set, Assembled   | 39c |

KAP-PAK PRODUCTS, INC.

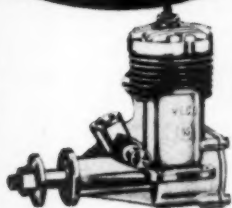
156 WEST WALTON PLACE, CHICAGO 10, ILLINOIS

Look for  
the name  
that  
guarantees  
championship  
performance  
in...

- MODELS
- ENGINES
- BOATS
- ACCESSORIES

# VECO

products



**.35C COMBAT ENGINE**  
Built for combat and rat racing. Crankshaft absorbs strains of violent maneuvers. High speed porting gives top rpms and thrust. Special fitting for use with pressure tank — \$16.95



### TUGBOAT

27" harbor or 35" ocean-going models. Expertly engineered for multi- or single-channel R/C. Formed styrene hull, pilot and deckhouse. Die-cut plywood planked deck. All metal fittings provided.  
Harbour Tug—\$18.95 • Ocean Tug—\$24.95.



### PRESSURE FUEL TANK

Designed for combat and stunt. Longitudinal baffle keeps fuel under pressure. Power failure and engine sag eliminated. 2 oz. to 4 oz. \$1.45

### Veco FUEL LINE TUBING



Made from specially compounded synthetic rubber and impregnated with flame retardant. Soft, extra flexible, resistant to cracking, ballooning. 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 28", 32", 36", 40", 44", 48", 52", 56", 60", 64", 68", 72", 76", 80", 84", 88", 92", 96", 100".

### PROFILE FUEL TANK

Completely new principle of baffling assures steady fuel flow to engine for smoother performance. 3 sizes — 3, 3 1/2, 4 oz. \$1.25



### Veco WHEELS



3/8" to 4 1/2" Diameter

Largest selection of rugged, lightweight, die cast hub wheels. Inflatable, semi-pneumatic, sponge or hard rubber tires.

### SPINNERS



Hand span aluminum for maximum strength and lightness, perfectly balanced. Regular or needle nosed 1" to 2 1/4" diameter.

VECO PRODUCTS ARE SOLD BY LEADING HOBBY DEALERS EVERYWHERE. VECO PRODUCTS CORP., BURBANK, CALIF.

# WYLAM PLANS

## EIGHT 14x20 IN. PLATES TO EACH SET!

For the first time in sets—YOU asked for them! Now available!

Set = W-1  
SOPWITH CAMEL  
Famed WW-1 English pursuit  
WRIGHT MODEL A  
A true pioneer—a gem!  
WRIGHT MODEL B  
Another collector's item  
SE-5A  
WW-1 pursuit—a favorite

Set = W-2  
SPAD S-XIII C-1  
Renowned WW-1 French pursuit  
CURTISS MODEL A  
A competitor of the Wrights  
SPAD S-VII  
Great French WW-1 pursuit  
WRIGHT FLIER  
Man's first flyable plane

Set = W-3  
CURTISS P-1 HAWKS  
Glamorous Army fighters  
F11C-2 GOSHAWK  
Navy carrier fighter  
P-6E HAWK  
Greatest of all the Hawks!

Set = W-4  
REPUBLIC P-47D  
The wonderful Thunderbolt  
SPITFIRE 2  
Battle of Britain hero  
MESSERSCHMITT Me-109J  
WW-2 German fighter  
CURTISS P-40D  
American WW-2 Warbird

For over 20 years, William Wylam has been an acknowledged master of the detailed drawings of historically famous airplanes. MAN is happy to comply with the many requests for Wylam plans by making available this selection

MODEL AIRPLANE NEWS  
551 Fifth Ave., New York 17

EACH SET \$1.00 ALL SIX \$5.00

Enclosed is for plan sets numbered in boxes below  
Please print your number DISTINCTLY in box for each plan you desire.

PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =
---------------	---------------	---------------	---------------	---------------	---------------

NO STAMPS PLEASE

NAME PLEASE PRINT

ADDRESS

CITY ZONE STATE

Just  
off  
the  
press!  
two  
new  
Wylam  
sets

Set = W-5

GRUMMAN F6F-3  
Navy's shipboard fighter  
DOUGLAS C-54  
Air Force transport  
DOUGLAS A-26  
Invader—now B-26  
BOEING B-17  
The Flying Fortress  
CONSOLIDATED B-24  
Liberator—a heavy!  
CURTISS A-25  
Navy divebomber  
CONSOLIDATED PB7  
That Catalina!  
NORTHROP P-61  
Black Widow  
BOEING B-29  
Famed Superfortress  
BOEING C-97  
Military transport  
MARTIN B-26  
Medium bomber

Set = W-6



## 24-HOUR SERVICE

# MODEL AIRPLANES CRAFTS TOYS MODEL RAILROADS

Your BIGGEST SOURCE OF SUPPLY... our GIANT new Catalog with over 300 pages. Send for it on your letterhead, we sell to dealers only, 100% wholesale, fast service on all orders.



**Catalog**  
For DEALERS  
THOUSANDS  
OF ITEMS!  
4 SHIPPING  
POINTS

**FREE**

**DEALERS  
HOBBY SUPPLY**

P. O. Box 10353-B  
2009 Farrington  
Dallas, Texas

P. O. Box 506-B  
510 E. Sixth St.  
Des Moines, Iowa

Dept. KC-B  
1120 E. 13th St.  
Kansas City, Mo.

Dept. M-B  
577 Scott St.  
Memphis, Tenn.

## LARGE SIZE PLANS FORD TRI-MOTOR

SCALE: 1/4"=1'-0"

# WYLAM MASTERPLAN

Drawn by MODEL AIRPLANE NEWS' William Wylam, these drawings consist of four 1/4 inch to the foot plans—each 14x20. Two plates show side view and cabin details, two more the dimensional layout and front details. Complete set \$1, post-paid.

AIR AGE INC., 551 FIFTH AVE., NEW YORK 17, N. Y.

## YOU'RE ALWAYS IN GOOD HANDS



When You Buy At  
The Store Displaying  
This Dealer Emblem

(Dealer inquiries invited)

Write To:

**CRAFT, MODEL & HOBBY INDUSTRY**  
30 East 29th St. New York 16, N.Y.

## Engine Review Cox Olympic

(Continued from page 24)

mounting lugs (a recent departure and also seen on the new Space-Hopper .049) and the twin ball-bearing mounted crankshaft.

Constructionwise, the new Cox is typical of this manufacturer's products. No castings are used. Crankcases are turned on screw machines from extruded bar stock, afterwards passing, in turn, through two other machines which do all the remaining operations—i.e. those non-concentric to the shaft. Pistons are machined from bar steel and are hardened on the wearing surface only, in order to leave the socket for the conrod ball-joint sufficiently ductile for subsequent working. Connecting-rods, which are of steel, are assembled to the pistons by a special machine, built in the Cox company's tool shop. The operator merely places rods and pistons in two hoppers feeding the machine, which assembles them entirely automatically.

In the finishing of such items as cylinder bores, much emphasis is placed on temperature control, as an aid to accurate working. All grinding, cylinder boring, honing, etc., are therefore done in a temperature-controlled room, in which the temperature is maintained constantly within one degree, after being pre-set at a comfortable working level.

The Olympic uses a ball-bearing mounted crankshaft, because, all other things being equal, a ball-bearing engine must achieve higher mechanical efficiency than a plain bearing motor. Agreed some highly impressive performances have been put up by plain-bearing motors, but these have been in spite of, not because of, having plain bearings. Frictional losses in the Olympic are obviously very low indeed.

The crankshaft journal itself is of smaller diameter (1/4-in.) than is usually employed in .15's. This is practical because it does not have the stress-raising intake port of a shaft-valve, and, being supported in ball-bearings, does not need the added bearing area of a large diameter journal. The shaft has a chamfered circular web and a machined-in crescent counterbalance. The connecting-rod is rather longer than average and piston side thrust is thereby held to a minimum. The piston is flat crowned and uncovers the large exhaust ports at 70 degrees BBDC, a normal timing. Bypass timing, on the other hand, is very advanced, the tops of the two internal bypass flutes being almost flush with the upper edges of the exhaust ports. The cylinder, as in other Cox motors is machined in one piece, with integral cooling fins, and screws into the crankcase. The combined glow head unit screws into the top of the cylinder and seats on a soft copper gasket.

Cox reed valves have been simplified, compared with the assemblies used on the Space-Bug and Thermal Hopper. On the Olympic, a single copper reed, retained by a wire snap ring, is used. Reed valve housing, crankcase backplate and carburetor venturi are combined in a single machined unit. The familiar and highly effective Cox triple-jet carburetor is featured, whereby fuel is supplied, finely atomized, via three small jets bored equidistantly around the venturi. Actual metering takes place before the fuel reaches the jets, by means of a separate needle-valve. The complete needle-valve unit is secured to the venturi by means of a nut with a large screened intake, and can be rotated through 360 degrees, for the most convenient location for individual installations.

## GOLD SEAL FULL RANGE GLOW PLUG \$1.00 ea.



- Now contains 2 TIMES more platinum than other plugs.
- Firing chamber increased to FULL 360 providing greater peak operation and still permits minimum idling.
- Performs better! Lasts Longer!

**LONG LIFE GLOW PLUG 65¢**  
Long Thread—Short Thread etc.

**OHLSSON MANUFACTURING CO.**  
1347 W. 16th St. • LONG BEACH, CALIF.  
Mail connected with Ohlsson & Rie

## LATEST OFFICIAL AIRCRAFT PHOTOS



**NOW, FIRST TIME, GET exclusive, official, sharp photos of advanced Supersonic Rockets, Jets, Historical planes. All makes, hundreds from which to choose.**

**SPECIAL INTRODUCTORY OFFER**  
with your name and address. Send only \$5.00... select one packet.

- |   |                             |
|---|-----------------------------|
| 1. 4 3 1/2x5 photos, world's fastest jets.                        | All five packets for \$1.00 |
| 2. 4 3 1/2x5 World War II planes.                                 |                             |
| 3. 4 3 1/2x5 of Rockets, Missiles.                                |                             |
| 4. 1 8x10 photo Boeing B-52 Jet Bomber.                           | \$1.00                      |
| 5. 1 8x10 photo Lockheed F-104 Starfighter. \$2.50 value for \$1. |                             |

Large illustrated catalog free with each order.

Absolute money back guarantee.

**MAIL YOUR ORDER NOW... TODAY.**

**AVIATION PHOTO EXCHANGE**  
Dept. MA Box 75084, Los Angeles 5, California

## BUILD A SKYHOPPER NOW ONE OR TWO-PLACE MODEL



**PLANS \$50.00** Money Back Offer!  
Clear, simplified and easy to read drawings. All ribs and fittings are drawn full size and may be used directly as templates in making parts. 200 sq. ft. of drawings supplied. Plans eligible for CAA license. SPECIAL OFFER... INBOARD AND 3-VIEW, PHOTOS, DATA... \$2.00.

**SKYHOPPER AIRPLANES, INC.**  
3500 ENVILLE PLACE, (Dept. M),  
Los Angeles 16, Calif.



## DUCTED FAN IMPELLER FOR LAND, SEA, OR AIR CRAFT

**65 C. EACH AT YOUR DEALER OR ORDER DIRECT, POSTPAID; OUTSIDE U.S.A.: 10C.**

More Thrust Than a 6-3 Prop!  
Pusher Type, 3" In Diameter For .049 Engines. Die Formed Aluminum Alloy.

- ASTRODYNE -

P.O. BOX 117, EAST MOLINE, ILLINOIS

Surprise item with the Olympic is the provision of a starter spring. Incongruous on an "expert's" engine? You will doubtless think so—until you have tried it a few times. There may be a few diehards who will insist on finger flipping rather than resort to such a "sissy" item as a spring starter. And they won't have any trouble because the Olympic is an easy-starting motor. But reed-valve motors have a tendency to occasionally start backwards, especially on small, light props. The starter definitely does a better job of starting: we were convinced of this after trying it against normal hand flipping. No reverse starts and the thing works like a charm, first time, every time. Starting from cold needs a cylinder prime, plus a couple of turns of the prop with the intake choked to draw fuel to the carburetor. The engine will then start within two or three attempts, provided it has been adequately primed. Restarts with a hot engine are instantaneous. If there is fuel in the delivery line, no priming, no choking and no needle readjustments are necessary: just wind the prop back one turn against the spring, energize the plug, release the prop and she's away.

As on other Cox engines, no lengthy break-in is needed and it is normally quite safe to let the motor have its head after a preliminary rich mixture break-in of only one minute. However, as a courtesy, our test engine was given 30 minutes running before any performance figures were taken. Tests were carried out with the aid of our reaction-dynamometer, on which, incidentally, some 40 different types of .15 engines, both diesel and glow, have been evaluated to date.

The first thing that became apparent with the Olympic, was its high torque. This reached a maximum of 23 oz. inches at between 11,000 and 12,000 rpm, which is equivalent to a brake mean effective pressure of 60 lb./sq. in., is better than any glow .15 previously tested and closely approaches the very high torque of top diesel 15's like the Oliver Tiger. As rpm are increased, however, the normal decline of the torque curve is less abrupt than with the diesels and, in consequence, the Olympic reaches a higher bhp peaking speed. Actual bhp figures, obtained with a fuel containing 30 percent nitromethane, were as follows:

At 10,000 rpm—	218 bhp
11,000 "	—248 "
12,000 "	—270 "
13,000 "	—288 "
14,000 "	—300 "
15,000 "	—310 "
16,000 "	—316 "
17,000 "	—318 "
18,000 "	—317 "

Running qualities throughout the tests were excellent, the motor running smoothly and consistently, and the response to the needle-valve was just right. Suggested prop for achieving maximum free-flight performance would be around 8 x 4 or 8 1/2 x 3 1/2.

#### Summary of Data

Type: Reverse-flow scavenged two-cycle with reed-valve intake.

Weight: 4 1/2-oz including starter spring.

Displacement: 0.1495 cu. in. or 2.45 c.c.

Bore: 0.585 in. Stroke: 0.556 in.

Stroke/Bore Ratio: 0.95:1.

Specific Output: 2.13 bhp/cu. in.

Power/Weight Ratio: 1.24 bhp/lb.

Price: \$12.98 including starter and special wrench.

Manufacturer: L. M. Cox Manufacturing Company Inc., 730 Poinsettia Street, Santa Ana, California.

by P.G.F. Chinn

# MODEL AIRPLANE NEWS

## Anniversary SPECIAL



### LIMITED SUMMER OFFER

OFFER GOOD UNTIL OCTOBER 1959

Celebrating Our Thirtieth Consecutive Year  
of Service to the Model Airplane Builder

<b>Twelve Months</b>	<b>\$3.00</b>
<b>Two Full Years</b>	<b>\$5.00</b>

Yes, it's only about once in 30 years that we can make an offer like this! Why not celebrate with us too by taking advantage of this Big Saving? Think of it—twelve jam-packed issues covering your favorite hobby for only \$3. Act now as offer is limited!

**MODEL AIRPLANE NEWS, 551 Fifth Ave., New York 17, N. Y.**

I want to take advantage of the Anniversary Offer.

Enclosed is: ☐ \$3 for one year

☐ \$5 for two years

Name .....

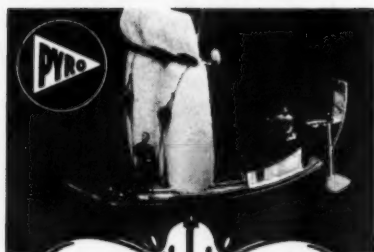
(Please print)

Address .....

City ..... Zone ..... State .....

Canada & Pan American Union Add 50c Per Year • All Other Countries Add \$1.50 Per Year

## X-ACTO KNIFE HELPS MAKE PLASTIC MODELS VALUABLE SHOW PIECES!



### PYRO BURMESE PADDY BOAT

This, and all other beautiful PYRO models, recommend an X-ACTO KNIFE in their assembly instructions.

X-ACTO interchangeable-blade KNIFE makes assembling easier, faster, more accurate. The finished model is perfect in every detail... adding to its value as a collector's item.

X-ACTO knives from 29¢.

Write for new X-ACTO Hobby Tool Guide — 25¢.



**X-ACTO, INC.**  
48-53 Van Dam Street  
Long Island City 1, N. Y.

**Bonner**

VOLTAGE: 2 TO 4V  
BATTERY DRAIN:  
NO LOAD 300-300 MA.  
WINDING 3 OHM.



**FEATURING OUR OWN MOTOR ESPECIALLY  
DESIGNED FOR SERVO USE—NOT AN IMPORT!**

OLITE BEARINGS — 93% SILVER BRUSHES  
TURNED COMMUTATOR — NYLON HOUSINGS

**TEST MODELS OPERATED FOR OVER ONE  
QUARTER MILLION COMMANDS!**

AVAILABLE AT YOUR DEALER NOW!

**BONNER SPECIALTIES**

ANNOUNCES THE  
**ALL NEW  
DURAMITE  
MULTI-SERVO**

'12<sup>55</sup>

WEIGHT: 2 1/2 OZ.  
OVER 4 LBS. THRUST

**GLOW CHECK**



**PRESS  
TO  
TEST**

Check  
Glow Plug  
IN ENGINE  
GLOW CHECK  
is left on bat-  
tery at all  
times — ready  
for instant use

**\$1.49**

**OHLSSON MANUFACTURING CO.**

1542 W. 16th St. • LONG BEACH, CALIF.  
Model comes test with CD-1000 & P-1

## Radio Control News

(Continued from page 30)

the N-46, while rated at 450mah will give this capacity only at a 10 hour rate, or a maximum drain of 45ma. The quick discharge in no way affects future life.

## CLUB NEWS

The Lakeland RC Club, c/o Bill Deffner, 165 Bank Street, Waukesha, Wis. is holding an AMA sanctioned two day contest on July 18th and 19th. This 6th Annual event at the Waukesha County Airport will cover rudder-only, intermediate, multi, pylon and scale, with plenty of trophies and other prizes. If you go early, a welcome party at the Avalon Hotel. Flying from 9 am until 5:30 pm on the 18th and from 9 am until noon on the 19th for eliminations and from 12:30 pm until 5 pm on the 19th for the finals.

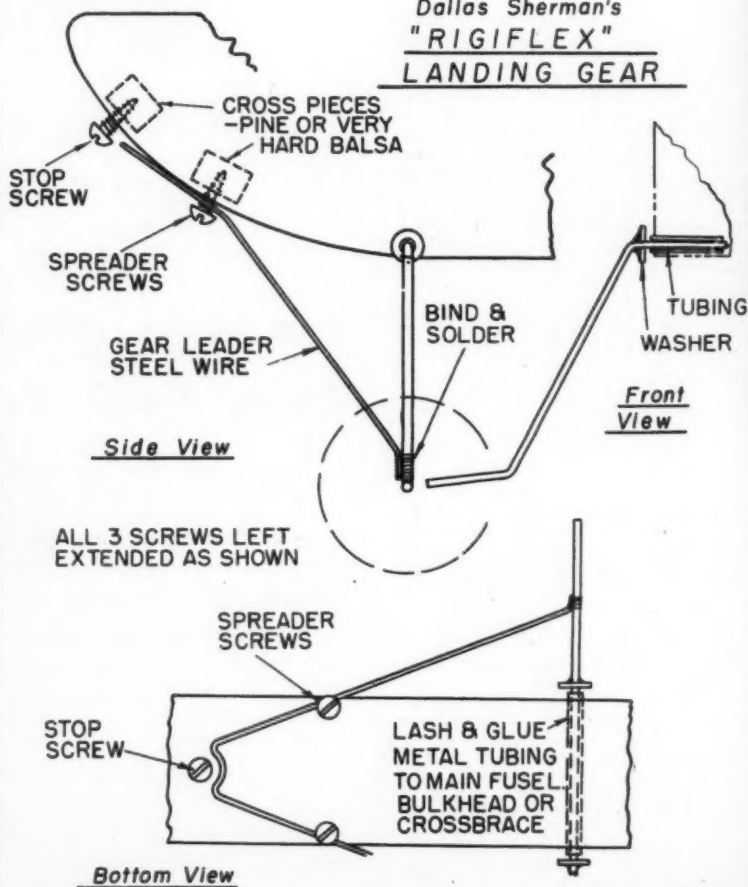
From the Bison Beep Box, Flying Bisons, Buffalo, we learn that Stan Keyser is building an ME-109 fitted with a .15 or .19 engine. Rudder-only to start and then elevators and engine control. Bud Marsh has finished a Piper Comanche using an O.S. Max. 25 to power the 56" model. Vince Rasp built a Cessna L-19 and should have no trouble with scale jobs since he built the Boeing F4B-4 last year.

Looks like quite a scale outfit, in addition to the Smog Hogs, Astro-Hogs and Live Wire designs. Cliff Barber points out that trouble can occur when using sub-miniature sockets if the tube leads are not straight (no kinks) and you are careless in inserting the tube, or transistor.

Interesting comments from the Central Jersey RC club tend to back up statements made in this column. Superhets won't be popular until the price is reduced and, at present, little if anything has been published to enable the RC fan to build his own. Super-regen circuits have been proven over many years and are now quite reliable. They can be built by the average builder and except for the interference problem are perfectly satisfactory. Superhets will be coming onto the scene but in the meantime don't sit around and watch others fly just because you have an "old-fashioned" super-regen. In the Rolling Breadboard operation (RC cars) on March 10th, Herm Birnbaum took first with his three-wheeler with a WAG TTPW system and a Mighty Midget for steering. Jan Mock took 2nd with his four-wheeler, one driving, and a two-relay delay network for two channels. Nick Clampa 3rd with a three-wheeler having the two front wheels driven separately by Mighty Midgets. The tail wheel was free to swing and

(Continued on page 61)

## Dallas Sherman's "RIGIFLEX" LANDING GEAR





SHAPED AND NOTCHED  
LEADING AND TRAILING EDGES

DIE-CUT RIBS, TAIL SURFACES  
AND PLYWOOD PARTS

SILKSPAN COVERING MATERIAL

SHAPED FUSELAGE

FORMED LANDING  
GEAR AND PUSH ROD

GENUINE DECAL

*...fast as  
lightning!*

COMPLETE  
HARDWARE PACKAGE

HARDWOOD  
ENGINE MOUNTS

**\$4.95**

Wing area . . 400in.

Engine .19 to .36 disp.

**Guillow's**

**GALAXY**

45 in.  
Wing span

**U-CONTROL MODEL**

*for* **STUNT · COMBAT · SPORT**

The "jet styled" Galaxy is exceptionally fast and tight maneuvering when used with a hot combat .35 engine. When powered with standard motors, it is a sensitive and highly maneuverable stunt and sport model. The Galaxy's light weight, sturdy construction and superior design endows it with the flying qualities dreamed of by all U-Control fans.

AIRFOILED BALSA WING

GENUINE DECAL

STURDY MOTOR  
MOUNT SYSTEM

COMPLETE  
HARDWARE PACKAGE

NEW ANGLE POISED  
LANDING GEAR ARRANGEMENT

If not available at your Hobby Dealer send direct to factory adding 25¢ packing and postage in U.S.A., 40¢ outside U.S.A.

**Guillow's**

20 inch wing span

**SKY KING**

KIT GM-19

**U-CONTROL MODEL FOR .020 ENGINE**

*Completely pre-fabricated*

The Sky King is designed primarily for the .020 engine but can also be easily adapted for .049 motors. Repeated tests by designer Lou Andrews has proven that the Sky King will "stay out on the lines" even in high winds. No equal for flight performance and durability in its class. An ideal trainer model for beginners — a terrific value for every modeler!

**\$1.79**

**EXTRA VALUE INCLUDED IN KIT!**

DACRON FLYING LINES  
AND CONTROL HANDLE

**PAUL K. GUILLOW Inc.**

WAKEFIELD, MASS.

# Complete Listing

## MODEL AIRPLANE NEWS FULL SIZE PLAN SERVICE

The editor's selection of all time favorites, including completely new combinations of the greatest designs. All types!

PLAN SETS 50c p.p.

### PLAN OF THE MONTH

61.

TRI-TRAVELER: Sc, FF, .049  
HOUDINI: RC, .15  
DIZZY BEE: Sp., U/C, .29  
Maneuverable but stable,  
Houdini, a low wing; Dizzy Bee,  
Lauderdale's latest Mono-Line.

4.

SURE FUN: UC Sport, .29-.35  
PROFILE SILVAIRE: FF Profile, 1/2A.  
ZEPHYR: Rubber, Fuselage  
Control line on floats. Sport Gassie.

9.

AEROCOM'DER: Scale, U/C, 2 .15.  
MARS: Bob Palmer stunt, .29-.35.  
NOBLER: Aldrich's Nats Winner,  
Stunt, .29-.35. Palmer and Aldrich,  
plus a twin ukie. Imagine!

10.

SMOG HOG: Bonner's Multi RC, .19-.35.  
STRATOLINER: 2 Half A, U/C.  
GUARDIAN: U/C Scale, .29 up.  
Greatest Multi RC of all time—a beauty!

11.

GAMBLER: Mirror Stunt Winner, .29-.35.  
DOUGLAS B-66: ducted fan FF, .049.  
B-66, the ducted fan job that  
beats all others.

12.

WHIRLING WINGS: Sikorsky XH-5,  
.15, 'copter.  
BREEZY: Small field RC, .049.  
SPITFIRE: Stunt, semi-scale, .29-.35.  
P. Schoenky, 'copter master—his Sikorsky!

13.

T-CRAFT: FF scale, .049.  
FENO: Combat, stunt, .29-.35.  
PADDY'S WAGON: Contest FF, .049.  
Paddy's Wagon—one contest  
job ok for beginner.

14.

HEATH PARASOL: RC, FF, Scale,  
.075 .09.  
GUARDIAN: Nats carrier winner, .29's.  
SHARPIE: FF Sport, .02-.049.  
—Guardian a dilly.

15.

RE-8: WW1, U/C, .29-.35.  
FLAPPING WINGS: Rubber,  
ornithopter.  
BOOMER: FF, sport, pusher, .049.  
Can planes fly like birds?  
Ornithopter sure does.

22.

MOONEY MITE: 1/2A Scale FF.  
'55 RAMBLER: .29 Team Racer.  
WACO CABIN: 1/2A FF Scale  
The Mite, stable, real looking low winger.  
Rambler still beats 'em. Waco—Cutel

43.

EQUALIZER: .15 to .19 multi, RC.  
QUICKIE TRAINER: Speed, .29.  
AMAZOOM: FF, contest, .15.  
deBolt's best, the Equalizer?  
Amazoom—Stan Hill's hi-thrust.

44.

CONVAIR'S DELTA: Jetex FF.  
LIL DYNAMITE: .15 stunt, UC.  
SWAT: 1/2A, FF, contest.  
A trio of exceptional planes.

45.

ASTRO-HOG: Multi RC, .29-.35  
MITCHELL: Profile, .09's, .15's UC.  
Dunn's low wing radio—topst!  
Nothing matches this multi.  
The Mitchell a fine flier.

46.

PROPJET B-47D: U/C, .15's.  
RUFFY: Stunt, .29-.35.  
NOR'EAST'ER: Nordic glider.  
B-47D, beaut of a project  
Ruffy: big winner—it's new!

47.

FOKKER E-3: 1/2A, FF, Scale.  
NAVY RACER: Rubber, semi-scale.  
WOODY: .29-.35, UC Combat. Hot!  
E-3, beautiful model, fine flier.

48.

SPORTCOUPE: .09, U/C, Stunt.  
WHATIZIT: .35, Combat, Wooten.  
SWIF-F-FT: Jetex, two sizes!  
Whatizit, settles fuse-wing debate!  
CONQUISTADOR: .29-.35, U/C  
Stunt.

49.

TWO-STAGE ROCKET: Jetex (2).  
Stunter is a thing of beauty, and  
it flies as well as it looks!

50.

DUMBO: PBV Scale, U/C, .19's.  
FRENCH OLDTIMER: 1914, 1/2A, FF.  
Dumbo, the Catalina, man-sized  
ukie, takes off, lands on water  
or ground.

51.

AMERICANO: .15 FF, by Blanchard.  
BOMARC: Scale, Jetex, missile.  
CUTLASS: Sport U/C, .049's.  
Scorpion power makes Bomarc ter-  
rific flier. Americano is National  
Champ's very latest.

52.

GAUCHO: RC Stunt, .29-.35.  
THE CHAMP: Best U.S. Wakefield.  
LAIRD SOLUTION: U/C Scale, .15-.23.  
Gaucho, Argentine Champ, does pattern  
inverted. Champ, a single Wakefield!

53.

SNAP: Sport U/C, .19-.23.  
PELICAN: PAA Cargo, .049.  
WINDMILL: FF, giro, .02-.049.  
For proto take-off and landing  
realistic Snap tops 'em all. Other  
two, collector's items.

54.

SATELLITE: Hunter's FF, .19-.35.  
SUPERMARINE S-6B: U/C Scale,  
.09-.15. Satellite is top contest free  
flight '58-'59. Schneider racer, S-  
6B seaplane is one of FAST club's  
best projects.

55.

DETROIT STUNTER: U/C .29-.35.  
HORNET MOTH: FF, Scale, .02-.049.  
THE BARDON: Wakefield.  
D'troit St.: McDonald's Strathmoor,  
Nats favorite. Bardon: Canadian  
and US Nats winner, tops in rubber.

56.

RYAN PT-22: U/C, .19-.25.  
SNIPE: Gurnett's Nordic.  
Lovely scale job, that PT, with  
workable flaps, throttle.  
Tow-line glider long, strong  
wing, right sections, etc.

57.

Twin Lizzie: 1/2A FF.  
Com-Bat: U/C, .29-.35.  
Fireboat: Marine, RC.  
T-Liz, a cute sport job.  
The boat, Musciano, a beaut.

58.

SE-5: FF, .09-.15  
PIED PIPER: Rat Race, UC.  
1/2 WAVE: RC, .049  
SE-5 most beautiful flying scale  
model ever published.

59.

GASSER: Willard RC, .09  
1958 WAKEFIELD WINNER  
SKY LANCER: Team, Proto, .29  
Gasser, hot pylon racer. Both  
the others beauties, too.

60.

BELLANCA: Scale U/C, .19-.29  
HALF ALPHA: FF, .049  
DUNWOODY GLIDERS  
Gliders (4) from Dunwoody  
series of articles.

PLAN SETS 50c p.p. NO STAMPS PLEASE

MODEL AIRPLANE NEWS • 551 FIFTH AVENUE, NEW YORK 17, N. Y.

Enclosed is \_\_\_\_\_ for plan sets numbered in boxes below

PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =
PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =	PLAN SET =

Please print your number DISTINCTLY in box for each plan you desire.

List additional plan orders on separate sheet.

NAME

PLEASE PRINT

ADDRESS

Limited Supply of Plans Listed Below.

Order Early! Check Correct Number on Coupon.

- 24. Aero Bat, Snoopy, Seagull
- 26. Corsair, Gyro-Glider, Santanita
- 29. Cougar, '55 Nordic Winner, Dizzy Boy
- 30. Great Lakes Trainer, Triple Threat RC
- 34. Corben Super Ace, Cessna 310, Profile Lightning

steering was accomplished by alternating power to each drive motor. Ed de Filippo was 4th with his three-wheeler and three-channel receiver, only two channels used. Ed's was the only non-pulse entrant.

A. B. Kunz, 2804 Liberty Street, Allentown, Pa. advises there are about 30 active fliers in his area, most on single channel. The multi channel fliers use Orbit, Bramco, Marcy and WAG TTPW.

Too late to announce more on the 6th International RC Contest held June 20-21 in London, Canada. Mentioned a new Perilous Pylon Race. For rudder-only, it had to be a flying start and a flying finish. For intermediate an ROG start with one loop down and one loop back and a flying finish. For multi an ROG start with two loops down and two back and then an upwind landing.

Photo from A. Friberg, Box 224, Tyninge, Sweden, shows him with his 2500mm (100") powered glider. The receiver uses a DL651 tube and three transistors, features a transistor converter and operates from six volts. The control actuator is a Telematic, mentioned in previous columns. Other interesting photos showed his transmitter, usable on either tone or CW and also featuring a DC power converter. With 6v input it gives 180v output at 20ma and uses two 2N256 transistors. RC gliders are an important phase of model building in the European and Scandinavian countries. Transistorized power converters are also widely used, mainly due to the higher cost of B batteries.

Speaking of RC gliders, we learn that the Wichita, Kan. boys really go all out with their RC glider work. Fourteen footers using eight channels and a 1200-foot tow line. Control is maintained on the

tow and, without hitting a thermal, a four-minute flight is about normal, the tow being almost overhead to the full 1200 feet of line. Just think, no engine or gear to install, no vibration problems, less building cost and the feeling of real accomplishment with even a two or three minute flight. The west coast fliers are the only ones we know of (Stan Hill in particular) who have done much to date in this field. Good conditions should produce flights of several hours with a five to six footer.

A quick check of the Carrier (EBRC's of Oakland, Cal.) shows that Bob Heise took 1st in the multi five-lap pylon race with a Torp .35 powered racer using the TTPW system. Dale Root was 2nd with the same style racer using the Torp .45 and Orbit-8. Dick Jacobsen came in 3rd with a scale PT-19 with Torp .35 and Orbit-8. In rudder only, three-laps, Bob Forbes was 1st with Breezy Sr. Torp .19 and Marcy Tone. Ralph Hall with a Super Cub was 2nd and Larry Murphy with a Max .19 Waco biplane and Orbit single was 3rd. Scale is really coming into its own out that way with PT-19's, Waco biplanes, Aerona's, a Stearman biplane, Cessna 170, Monocoupe and an exact scale P-38—stand back! Dale Root, in addition to holding the speed record at 65.7mph, now holds the Bay Area Trophy for duration. His Comet Clipper (do you remember?) kept its wheels off the ground for 1 hour 24 minutes.

The Washington DC/RC Newsletter has it that Walt Good may be taking up RC gliders and Tom McCraw had returned to him his six-foot "Pterodactyl", the only damage being to the stabilizer which was stepped on by a cow or other large animal, probably a dinosaur. Symposium papers from the April convention will be available from the AMA for \$2.00. This



Maynard Hill was "snowed" in his attempt to put his "Maxie" into the air for demonstration at the RC Symposium, held in Washington, D.C.,

on April 12. More than 125 enthusiasts attended a second annual RC Symposium, put on by the DCRC and Academy of Model Aeronautics.

**FLASH!** And still they come...  
Jan. Triple A Southwest Regional Meet, Phoenix, Ariz. **FIRST** in Class A.  
Feb. **FIRST** and **SECOND** in A, Thunderbugs.  
**FIRST** and **SECOND** in A, Pacific Coasters.  
Mar. **FIRST** in A, AMA, Thunderbugs.  
**NEW RULES.**  
What are you waiting for? Move up today to

Toshi Matsuda's **ZERO**



**\$2.95**

The hottest thing in 1/2A! It climbs higher, faster... stays up longer. Designed to use ALL the power of the best .049s! For an unsurpassed thrill, hang your engine on a ZERO. See for yourself the super performance that has already won a string of Firsts! At a recent contest the "anyone can get 5 minutes" models were doing 3 to 3½ minutes. Tosh de-thermalized his ZERO three times straight at over SEVEN MINUTES. Does that tell the story?

**WARNING!** Watch the engine-run— or you may put your ZERO in orbit!

### A-1 NORDIC GLIDER

**THE GHOST Kit \$2.95**



Only A-1 Class Nordic Glider on the market! Adapted from latest, hottest German designs. With Auto Rudder and Pop-Up De-thermalizer,

### FREE FLIGHT DELTA

for .049 Just \$2.50



If you too are curious about a Delta, here's dependable performance and true Delta characteristics in a job that has been thoroughly proven before being announced.



**MISS TINY \$5.95**

Exceptional wind penetration and stability!

A good flying R/C Model doesn't have to be an ugly box! Miss Tiny is world-famous for her beauty and flying qualities. Uses hot .049 to .099 engines, depending on weight of R/C gear. Wing Span 46". Finished cowl and die-cut parts.

Ask your dealer, or send M. O. and we'll ship prepaid. (Mr. Dealer: If your jobber won't supply you, send M. O. for prepaid shipment, regular discounts.)

**MODEL CRAFT**

8945 SOUTH WESTERN AVENUE  
LOS ANGELES 47, CALIFORNIA





## ADVERTISING INDEX—AUGUST, 1959

Ace Radio Control	44
Acme Model Engineering Co.	45
Ambroid Co., Inc.	51
America's Hobby Center	6, 7, 8
Astrodyne	56
Aviation Photo Exchange	56
Babcock Models, Inc.	40
Berkeley Models, Inc.	64
Bonner Specialties	54, 58
CG Electronics Corp.	3
Champion Products, Inc.	Third Cover
Cleveland Model Products Co.	52
Comet Model Hobbycraft, Inc.	42
The Controlon Co.	47
L. M. Cox Mfg. Co., Inc.	47
Craft, Model & Hobby Industry	54, 56
Dealers Hobby Supply	56
The DeBolt Model Engineering Co.	52
Doubladay & Co.	39
Dynamic Models, Inc.	31
ESSCO	52
Enterprise Model Aircraft Co.	49
Forster-Appelt Mfg. Co., Inc.	63
Fox Manufacturing Corp., Inc.	Second Cover
Carl Goldberg Models, Inc.	37
Grish Brothers	59
Paul K. Guillow, Inc.	49
Gull Model Airplane Co.	41
Harleyford Publications, Ltd.	50
Hawk Model Co.	40
Herkimer Tool & Model Works	5
Jaico Products	38
Jayhawk Models	41
K & B Allyn Co.	54
Kap-Pak Products, Inc.	54
Lee's Hobby Supplies	49
LePage's, Inc.	46
Minnesota Engine Works, Inc.	38
Modelcraft	41
Monogram Models, Inc.	53
Ohlsson Mfg. Co.	56, 58
Pactra Chemical Co., Inc.	Fourth Cover
Perfect Parts Co.	2
Polk's Model Craft Hobbies	31, 46
Random House, Inc.	46
Scientific Model Airplane Co.	42, 43
Skyhopper Airplanes, Inc.	56
Sterling Models	38, 39
Stewart/Lundahl Co.	45
The Testor Corporation	32, 33
Top Flite Models, Inc.	34, 35
Veco Products Corp.	55
World Engines	36
X-Acto, Inc.	58

## Do It Yourself . . . with **CONTROLON**



- Fly right—right from the start!
- Real stick control from outside the circle lets you perform complete AMA stunt pattern.
- Perfect for all planes—up to and including .35 engines.
- All metal—precision made. Not a toy!
- Control stick 14"; pylon 14 1/2" high, 4" square at base.

**NEW LOW  
PRICE!**  
**\$9.95**

## **BESTOOGEE**

Bestoogee is a modeler's best friend. It allows one-man operation of U-control airplanes. Includes rubber-padded spring clamp. Thoroughly proved in use.

**PRICE, ONLY \$1.00**

Get Controlon and Bestoogee now—at your Dealer's. If he cannot supply you, order direct—include 35¢ for postage.

**THE CONTROLON CO.**  
6913 Sprague Rd., Cleveland 31, Ohio

100 pages plus proceedings will bring you up to date on the technical topics discussed.

Following is the proposed system for selection of FAI RC team members to represent the USA. The country will be divided into three regions with division lines at 80 and 100 degrees longitude. One team member will be selected from each region and will have the highest number of points within his region. Points will be earned as follows, 1st through 10th place: (Multi) 1958 Nats—180, 95, 85, 75, 65, 55, 45, 35, 25 and 15 points; 1959 Nats—200, 115, 105, 95, 85, 75, 65, 55, 45 and 35 points. In addition, the candidates can gather other points in their own regional contests as follows: 1959 RC/DC at Washington, D.C.—1st place 36 pts; 2nd, 24 pts; and 3rd, 12 pts. Same points given at the 1959 Great Lakes Meet, Detroit, and at the LARKS Meet in Bakersfield, Calif. Candidates must hold valid AMA cards and comply with applicable FCC regulations. This system will also be used to select the 1st, 2nd and 3rd alternates in each region.

## NEW ITEMS

New to most modelers, Celastic is a "poor man's fiberglass". Thanks to Mr. Ev Schoenberg, 811 Whittier, Wichita, Kan. we have tried a sample. Celastic is a fabric-based material impregnated with other fibres and a thermoplastic material. It is about 3/64" thick and is ready for use after it has been dipped in a solvent. We found acetone, thinner, MEK and other solvents to be excellent, with the best mixture for our use being 50/50 acetone and dope thinner. After a quick dip in the solvent, the material becomes very pliable and is easily formed and adhered to practically any surface, wood or metal, flat or with mild compound curves. While not as tough as fiberglass, it is easier to use and can be applied over dope and even oily and greasy surfaces. Once in place, and you can smooth it and feather the edges by applying a few drops of solvent. It dries in about 45 minutes.

The only apparent drawback is that it is not fuelproof, otherwise you can sand, saw, file and dope it. What can you do with it? John Worth repairs broken fuselages in about 30 minutes. Dean Zongker uses it for wing tip skids on "Speed Merchant". Dick West on landing skids for his 1/2A RC job, and Tom Williams repairs fuselage and reinforces noses. Good for dihedral joint splicing. Two square feet cost about \$2.00 from Serco Imports, Wichita, Kan. or, a club can obtain it in quantity from Ben Walters Inc., 156 7th Ave., New York 11, N.Y.

Reports in on the Tomoser MP-H servo are very encouraging. Low drain and high torque, together with smooth action and versatility of application make this servo a must for pulse (especially WAG TTPW) systems. Tests have gone up to 750,000 operations, which actually represents 1,500,000 commands on multi use. Dale Springsted has run two of the MP-H units for over an hour on three 500mah nickel-cadmium cells. An up-and-coming servo for the proportional field. Tomoser Electronics and Mfg. Co., 217 Vulcan St., Buffalo 7, N.Y.

Gyro Electronics Co., 36 Walker St., New York 13, N.Y. offers the following from 1959 RC Directory! Diagrams for receivers, transmitters, pulsed and other items can be had for 19 cents. A reverse-stop stepping switch for boats or cars is \$3.25, a telephone dial for 1-10 impulses,

\$3.50. A joystick control box, made for an Automatic Pilot and containing five micro-switches is \$3.95. Gyro also has a wide range of subminiature disc and electrolytic capacitors.

United Mineral and Chemical Corp., 16 Hudson St., New York 13, N.Y. has a new pressure-sensitive Foam Tape that may be used for shock-mounting, seal against dust, anti-slippage and other applications. Available in 1/8", 1/4" and 1/2" thickness and from 1/4" to 18 1/2" widths with colors being green, gray, brown, black and cream-white. Prices are reasonable and we trust an enterprising hobby distributor will be able to make this readily available to the RC and other modeling fans.

Ace Control, Box 301 Higgsinsville, Mo., has a spiral plastic, flexible tube that helps eliminate floppy wires in an installation. The tubing is merely wrapped around the bundle of wire, which may be up to about 1/4" in diameter. This is the ideal thing for multi jobs at 7 cents a foot. Ace also features a more complete line for those desiring to make their own printed wiring patterns. Individuals or clubs can now make a sizable number of patterns with the minimum amount of work.

From F & M Electronics, 537 Grove St., N.E., Albuquerque, New Mex., word of forthcoming single-channel proportional system using frequency modulated sub-carrier to carry the information. This will be a 3v superhet working directly into a Sage actuator or equivalent. There will be no pulsing and the system will be fail-safe in that controls remain in neutral on loss of signal. Relay for throttle operates by elimination of modulation.

When CG discontinued their multi-channel sets (new line impending) F & M purchased entire stock, now offered as follows: RT-8 receiver, \$139.50, RT-5, \$105.00; RT-3, \$70.00; RT-2, \$55.00. In each case, the transmitter comes free. Limited supply of T-11 x-mitters at \$9.95 each.

## MAN at Work

(Continued from page 4)

judges, watch holders, and well wishers turned the event into an all day jam session. Seems everybody had a trunk full of shiny models accumulated during the winter. The joint was Simpl/Simul crazy. Having an inexhaustible battery supply in the FAI job, made 21 flights, experimenting with flight patterns over hot runways and green woods.

Three-channel Marcy receiver gives left and right on Bonner servo, with third channel for spoilers. This will be replaced with four-channels, giving down trim with last channel for quick neutralizing. All engines present suffered from heat, as usual, so, putting a three-inch diameter piece of tin under the compression adjustment crank of the Diesel, picked up 750 rpm to normal. You cannot turn an "over-size" prop on any modern engine on a hot day—manufacturers don't believe in fins or cooling, we gather. This tin hat—really crazy, but it stays! Marcy multi uses filters, not reeds, so one less worry on long flights.

What a day! At Moon's Memory Inn, alongside the Dutchess County Airport, some 30 couples (ancient order of Sky-scrappers) and their wives—and a raft of kids—were set for a reunion. Wonderful idea that other old clubs should try. On the airport were many gliders assembled for a Northeast Gliding Meet. Things got lively when some power plane guy, so far

## RICH'S HOBBYTOWNE

U.S. HIGHWAY 46  
PARSIPPANY, N. J.

featuring  
America's Only

## TRI-O-RAMA FIELD

(24 MILES FROM N.Y.C.)

### 5 FLYING CIRCLES 2 Large—3 Small Paved Runways. Center Posts.



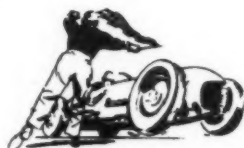
### 2 MIDGET RACE CAR TRACKS Large & Small Cars

### 1 BOAT POND Hydro Racing and Radio Control



### 1 ROCKET LAUNCHING Platform for Safety. Approved Rockets

### 1 QUARTER MIDGET CAR AREA



Free field information upon  
request. Come for the day or  
week-end.

Send for  
Souvenir Brochure  
35¢

#### BRANCH STORE

1241 MAIN AVE., CLIFTON, N.J.  
PRESCOTT 3-4442

47 BROADWAY, DENVER, N.J.  
OAKWOOD 7-0794

off course that he was in the wrong part of the country, sent out a "May Day." Asked to describe the country beneath, he reported a Castle on a lake. This proved to be West Point on the Hudson River. Later, he tried to take off downwind—much shouting, arm waving, and running about! Eating ice-cold watermelon beneath the shade trees—with Lorenz, Don Grout, and Norm Rosenstock, watching the air tows of gliders down the road a piece, has it all over trying to break records in the hot sun. For MAN at Work, E.J. put up a ham-mock. The darned thing collapsed. Sitting uneasily as this is written, MAN at W has his suspicions!

► And there were some on the old Sky-scraper list, lost in war or since gone peacefully. Since the modern hobby dates back to the Wrights—the Frenchman, Penaud, built a fine flying model in 1872, it is natural that all those who have passed on, but are always with us, could put together a great competitive team. Jim Saffig, who used to do Western Notes in this magazine, who was one of the truly great stunt men, just recently succumbed to injuries from a light-plane accident. And a few months ago, Art Heinrich, whose "53 Years of Modeling" appeared in MAN a few years ago. Art was a pioneer flier and a barnstormer of note before 1910. When twin pushers were king, he built the world's best and lightest—one and a fraction ounces.

And Hans Pfeil, an old time German modeler, respected throughout the world for a spirit that recognized no borders. In his very last letter, Hans commented of the model magazines, American and English, which were thoughtfully sent him: "What a constant, faithful gift—my only contact with modeldom and a monthly re-voir with all my friends who formerly wrote but now are silent because I can't muster the strength to drop a line to everybody. So I have the constant pleasure of hearing what's going on, of seeing the latest developments, and feel my fingers itching like mad for the odd building job . . . in view of this universal spirit of which Lindbergh said, 'If we fly, we all speak the same language.'"

Hans had read MAN since 1935. His early back issues were stacked in his West Prussian home, now part of Polish administered territory. During the war, he got them illegally via Spain and Scandinavia. From 1946 on, his back issues were similarly stacked in West Germany. Hans was not unique by any means.

► Speaking of promotions, a very special one, was the third annual spring concert by the Testor Chorus, in Rockford, Ill. The Chorus happens to be 60 voices, and the 30-piece orchestra consisted of members of the Chicago Symphony. Proceeds went to Swedish Historical Society, of Rockford. Example of fine music sponsored by an industry—our industry . . . From P-1 to F-108 is roughly 40 years as the "fighters" fly. But the 108 will launch an atomic missile 1000 miles from base and be back on the ground a half hour later . . . "Bargain book" by AHC is a 32-pager listing items at savings up to 50%. Absolutely free, says America's Hobby Center—"if you send an unused four-cent stamp!" Also, Guide to Radio Control, two bits . . . February issue of Model Aviation includes a 36-page insert of the Official Model Aircraft Regulations for 1959-1960. Copies of the rules booklet alone costs 25¢. Model Aviation, this issue, runs 24 pages exclusive of the rules. Subscription by the year, \$1 to non-members. If you are an AMA member, this is part of what you get for that infamous buck.

## How Should You Choose An Engine?

In one word — CAREFULLY. Be sure it has time tested features as follows:

Short stroke "over-square" design for less friction.

Spherical combustion chamber, burns fuel faster and cleaner.

Cylinder head gasket "locked-in", cannot blow out.

Compression ratio 9 to 1 for greater efficiency.

Connecting rod of forged aluminum alloy, tough as steel, but light in weight.

Carburetor designed for high fuel lift to give certain fuel draw in all stunt or combat maneuvers.

Needle valve with "micro-fine" thread, which may be reversed if desired.

Piston of precision cast mechanite lapped to a perfect fit.

Baffle plate scientifically formed to direct the gas flow.

Crankshaft of alloy steel, counter-balanced, hardened, ground and polished, with a large, square port.

Cylinder of heat-treated steel, micro-honed to a perfect finish with large square ports for high volumetric efficiency and deep fins for good cooling.

Piston pin of hollow, hardened steel, precision ground. Retaining spring clips keep the pin in place, making pads unnecessary.

Main bearing of aircraft quality, low friction, long-wearing bronze.

All of the above features, and others too numerous to mention, are found in the new, easy starting, powerful and speedy

## FORSTER ENGINES

There are eight FORSTER models to choose from:

29R	Air cooled . . . . .	\$14.95
29RC	Speed Control . . . . .	\$19.95
29RW	Water Jacket . . . . .	\$19.95
29RCW	Speed Control & Water Jacket . . . . .	\$24.95
35R	Air cooled . . . . .	\$14.95
35RC	Speed Control . . . . .	\$19.95
35RW	Water Jacket . . . . .	\$19.95
35RCW	Speed Control & Water Jacket . . . . .	\$24.95

Beside all the above, you get up to \$5.00 trade-in allowance for your old engine at your Authorized FORSTER Dealer. Send coupon for free illustrated literature, and name & address of your nearest FORSTER Dealer.

## Forster-Appelt Mfg. Co., Inc.

87 E. LANARK AVE., LANARK, ILL.

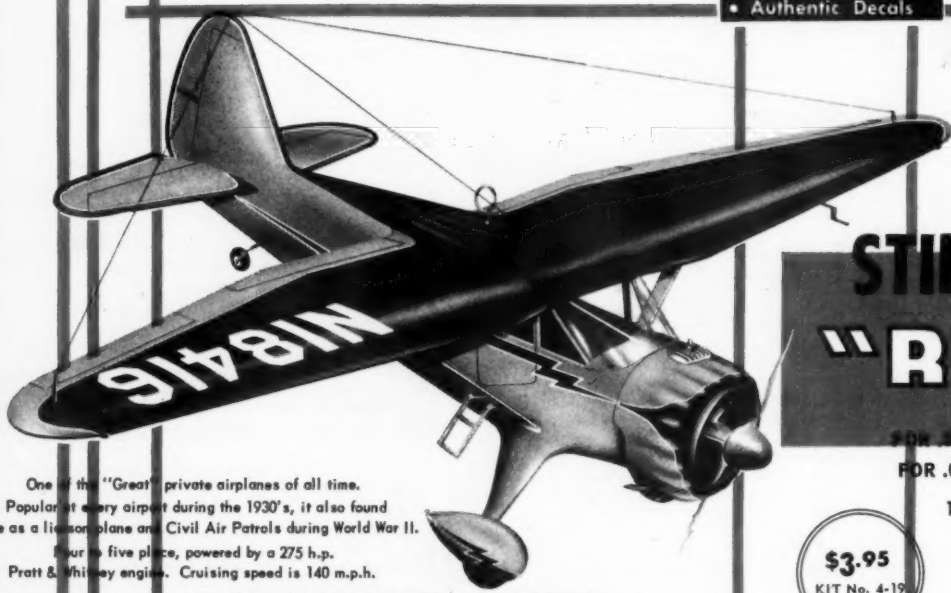
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

# MODELS OF THE MONTH by Berkeley



- Authentic Decals
- Full Size Berkeley Detailed Plans
- Die-Cut Balsa and Plywood
- Formed Wire Landing Gear
- All Necessary Hardware
- Formed Plastic Canopy

## STINSON SR-9 "RELIANT"

FOR .345 TO .409 ENGINES - FREE FLIGHT  
FOR .099 TO .29 ENGINES - CONTROL LINE  
1" SCALE 42" WINGSPAN

**\$3.95**  
KIT No. 4-19

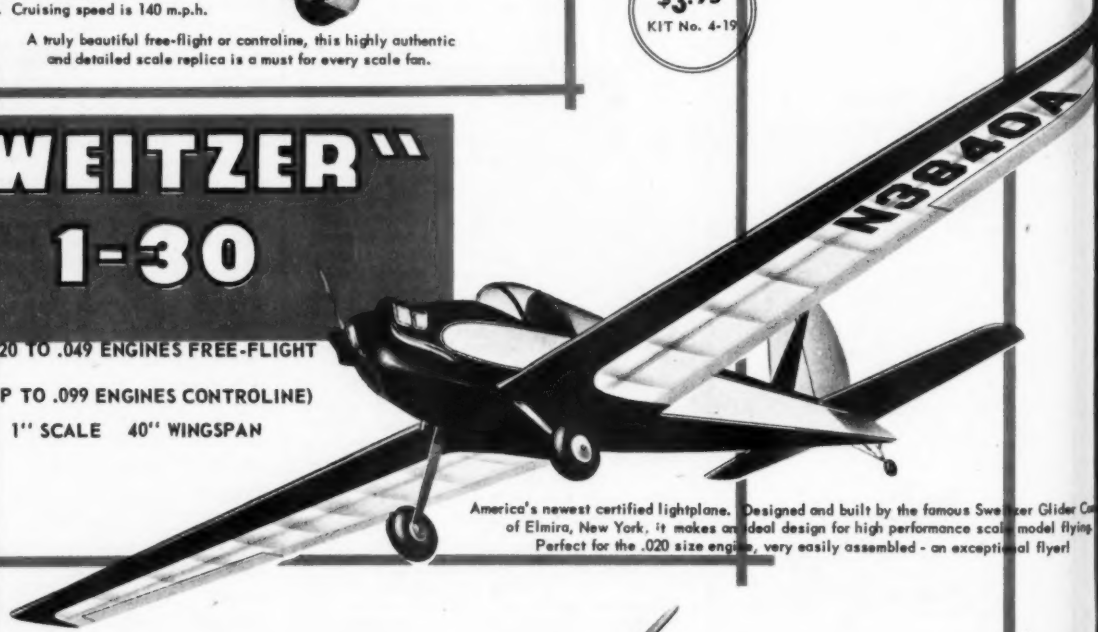
One of the "Great" private airplanes of all time. Popular at every airport during the 1930's, it also found use as a liaison plane and Civil Air Patrols during World War II. Four to five place, powered by a 275 h.p. Pratt & Whitney engine. Cruising speed is 140 m.p.h.

A truly beautiful free-flight or control line, this highly authentic and detailed scale replica is a must for every scale fan.

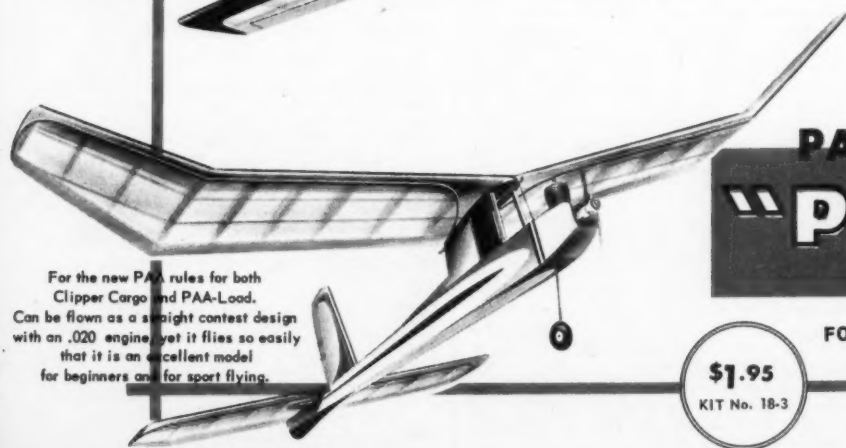
## "SWEITZER" 1-30

**\$2.95**  
KIT No. 4-18

FOR .020 TO .049 ENGINES FREE-FLIGHT  
(UP TO .099 ENGINES CONTROL LINE)  
1" SCALE 40" WINGSPAN



America's newest certified lightplane. Designed and built by the famous Sweitzer Glider Co. of Elmira, New York, it makes an ideal design for high performance scale model flying. Perfect for the .020 size engine, very easily assembled - an exceptional flyer!



For the new PAA rules for both Clipper Cargo and PAA-Load. Can be flown as a straight contest design with an .020 engine, yet it flies so easily that it is an excellent model for beginners and for sport flying.

## PAY LOAD - SPORT "PAY-DIRT" FREE FLIGHT

FOR .020 ENGINES 36" OR 48" WINGSPAN

**\$1.95**  
KIT No. 18-3

Since 1945, Berkeley Model Supply, Inc. has been the leading source for model airplane kits and plans. BERKELEY MODELS INC. WEST HEMPSTEAD, NEW YORK U.S.A.

If no local dealer is convenient, mail orders will be filled by Berkeley Model Supply, Inc., Dept. M.A., West Hempstead, N.Y. 11552. Add \$2.50 packing & postage.







**IT'S HERE**

**...NOW!**

the **ULTRA** of TODAY'S model fuels . . .  
superlative quality . . . performance

the **NEW**

# MISSILE MIST

## FORMULA

This fuel is a scientific  
blend of these high  
quality ingredients . . .

### CASTOR OIL

first pressing, filtered

### METHANOL

### NITROMETHANE

### PROPYLENE OXIDE

### SYNTHETIC LUBRICANTS

You will find this fuel  
especially suited to the  
following motors:

FOX 09, 15 and 19

FOX COMBAT SPECIAL

McCoy 29 and 35

TORPEDO 19, 29 and 35

custom blended  
for high compression  
model motors  
gives you

**MORE POWER - QUICK STARTING**

**COOL BURNING - LESS SENSITIVITY**

**to mixtures and weather conditions -**

**GREATER ECONOMY**



## PRICES

Pints

**95¢**

Quarts

**\$1.69**

Gallons

**\$5.50**

MISSILE MIST, the new liquid propellant, contains perfectly matched components. This was achieved by first testing, in comparative flight operations, nearly all model airplane fuels on the market as well as the favorite mixes of many well-known modelers. MISSILE MIST fills *all* the needs of the most demanding experts and is designed to give the finest performance with *all* medium and high compression motors . . . a truly premium fuel at a non-premium price.

You will find MISSILE MIST superior in the world of model airplane fuels. Every can of MISSILE MIST is guaranteed to give you complete satisfaction.

**TRY IT! Ask for it by name — the New Champion MISSILE MIST liquid propellant — at your Hobby Shop.**

**SATISFACTION  
GUARANTEED**



**CHAMPION PRODUCTS**

FORT SMITH, ARKANSAS



HERE THEY ARE!

# Customizing



**for your individualized "show" models!**

Special paint jobs are as essential to "customizing" your car kit as tail fins, chrome bumpers and wheel discs—and Pactra's new Customizing AUTOMOTIVE COLORS are ready for the job! Here is 'Name!—the kit builder's favorite paint—in special "custom" colors to match this season's popular makes. Pick your kit today and paint it with these Pactra authentic automotive colors:

10¢ per bottle  
3 for 25¢



METALLICS  
COLOR KIT 59¢

# pactra

PACTRA CHEMICAL COMPANY, 1213 NORTH HIGHLAND AVENUE, LOS ANGELES 38, CALIF.

